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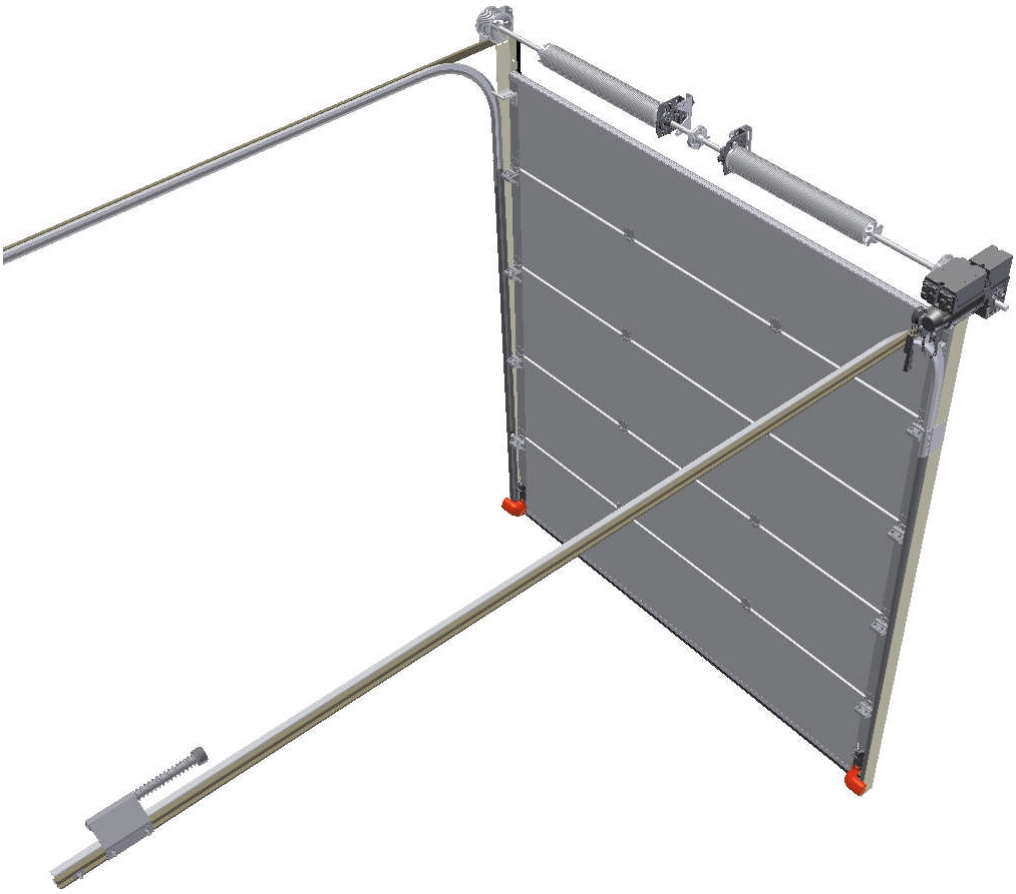

Installation Manual

‘Ready To Fit’ Overhead Sectional Doors
Standard Lift, High Lift, Vertical Lift.

UK

ISO 9001
REGISTERED FIRM

CE

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1. Symbols and/or warning signs.

General DANGER !! symbol
ATTENTION !! symbol
Carefully read the text when you see this symbol !!

Symbol : Risk of personal injury!!
Carefully read the text when you see this symbol !!

2. General

This Installation Manual was written specifically for use by qualified personnel and is therefore not suitable for apprentices or 'DIY-ers'.
If anything regarding installation and/or maintenance is not clear, please contact DOCO International.

To prevent serious personal injury, all directions and instructions in this manual should be carefully read and observed.

- This manual describes the installation of 'Ready To Fit' Overhead Doors with torsion springs, but it may be necessary to consult other installation manuals such as the one for the motor (if fitted).
- This 'Ready To Fit' Overhead Door is designed in accordance with the latest European standards, however you should check whether it complies with your local national standards.
- Adding or removing parts may have an adverse effect on the operation and thus the safety of the final sectional gate.
- All instructions regarding handing (right/left installation) are seen from the place of installation, i.e. from the inside looking out!
- Unless stated otherwise, all measurements are in millimetres.
- After installation, check whether the CE mark has been affixed and completed.
- This manual should be carefully stored.
- We reserve the right to modify specifications without written notice.

2.1 Safety requirements regarding installation and use

- The 'Ready To Fit' Overhead Door may only be installed, connected and commisioned by skilled personnel.
- When working on the electrics, always ensure the power is and remains isolated!
- Never bypass safety features!
- Some parts have sharp edges - use safety gloves.
- Never operate the sectional gate if you see that the safety features are damaged.
- During installation / maintenance of the door, wear at least gloves, safety shoes and, when drilling, safety goggles!
- Always ensure a stable footing when working.
- Secure the installation / maintenance area using appropriate safety devices to keep others at a distance.
- Maintenance should only be performed by a specialist firm and/or qualified personnel.
- Provide adequate lighting.
- Only use suitable tools, especially for tensioning torsion springs.

3. Directives and standards

The following directives and standards were used during the design, production and installation of these tracks.

98/37/EEC	**Machine Directive**
89/106/EEC	**Construction Equipment Directive**
89/336/EEC	**EMC Directive**
73/23/EEC	**Low Voltage Directive**
EN 12604:2000	Mechanical aspects; requirements and classification
EN 12605:2000	Mechanical aspects; testing methods
EN 12445:2000	Safety for powered gates; testing methods
EN 12453:2000	Safety for powered gates, requirements
EN 13241-1:2003	Door and gate product standard

3.1 Warranty and liability

Unprofessional installation, unauthorized alterations (other parts) to the door or alterations to the drive that are not in compliance with this manual will invalidate the warranty and thus will release the manufacturers from any liability. This also includes damage resulting from incorrect operation, failure to follow the instructions in this manual and/or poor maintenance and/or care.

4 Installation

4.1 Application

DOCO International have developed 'Ready To Fit' Doors designed for installation in industrial entrances/exits to be used safely for vehicles and/or people.*
These doors contain the following features:

- Steel hardware sets with front torsion springs, fully balanced.
- Compliance with the CE standard provided only DOCO International parts are used (unless stated otherwise).

* If the gate is switched to automatic or remote control, extra measures need to be taken to guarantee safety! See paragraph 4.16.3.c) *Control: Automatic operation or via remote*.

4.1.1 Specifications

Standard lift:
7.0m max. width
6.0m max. height
Door surface: 36m2 max.
Weight: 600kg max.
Installation area: see system drawings

High lift:
7.0m max. width
6.0m max. height
High lift: 4.1m max.
Door surface: 36m2 max.
Weight: 600kg max.
Installation area: see system drawings

Vertical fitting:
7.0m max. width
6.0m max. height
Door surface: 36m2 max.
Weight: 600kg max.
Installation area: see system drawings

EN 13241-1 classification: see appendix 5

This manual describes the installation of a sectional door using only DOCO International parts. Any installation of parts not specified or other parts not described in this manual is the responsibility of the installer. The installer is therefore, responsible for the correct CE certification of the sectional door.

DOCO International Limited has had the "product testing" of these doors carried out by the British Research Establishment in Watford, United Kingdom, registered as Notified Body No. 1576 and the TUV North in Germany, registered as Notified Body No 0032.

This "product testing" does NOT include any wicket door. If you DO install a wicket door, additional "product testing" is needed. This is the responsibility of the purchaser/installer.

4.2 Scope of supply

The door supplied by us includes the following parts, the details of which depend on the door dimensions and the type of lifting system.

Track set:
- Vertical track set assembled
- Horizontal track set assembled
- Side seals

Counterbalance assembly:
- End bearing plates
- Shaft
- Cable drums
- Steel cables
- Spring break protection devices
- Coupling
- Assembled torsion springs - calculated for each individual door by our computer programme

Hardware and panel related products:

- Insulated door panels
- Cable break protection (base console)
- Side hinges
- Centre hinges
- End covers
- Stiffening profiles - dependant on width
- Rollers
- Aluminium bottom profile
- Aluminium top profile
- Bottom seal
- Top seal
- Spring bumpers
- Self-tapping screws
- Back track hangars and track bracing bar

Options:
- Lock
- Handle
- Chain hoist
-

Drive and control unit:
- Guthrie Douglas (GFA)
- Link Controls
- Kaba Garog

Safety Bottom Edge :
- Fraba set
- Fraba end stop set

4.3 Installation tools

Here is a minimum list of the necessary tools:

- Level (hose)
- Drill
- Battery - drill
- Jigsaw
- Tensioning bars
- Flexible steel rule
- Ratchet and cover 10mm / 13mm
- Ring/open-ended spanner: 10 – 11mm / 12 – 13mm
- Gripper: 2x
- Blind rivet pliers
- Rope
- Ladder or scaffolding / cherry picker / scissor lift
- Iron file
- Allen keys
- Drill bits: Ø9 , Ø10
- Working gloves
- Safety goggles
- Safety boots

Always wear safety goggles and gloves when drilling!
Use stable and safe ladders or scaffolding!

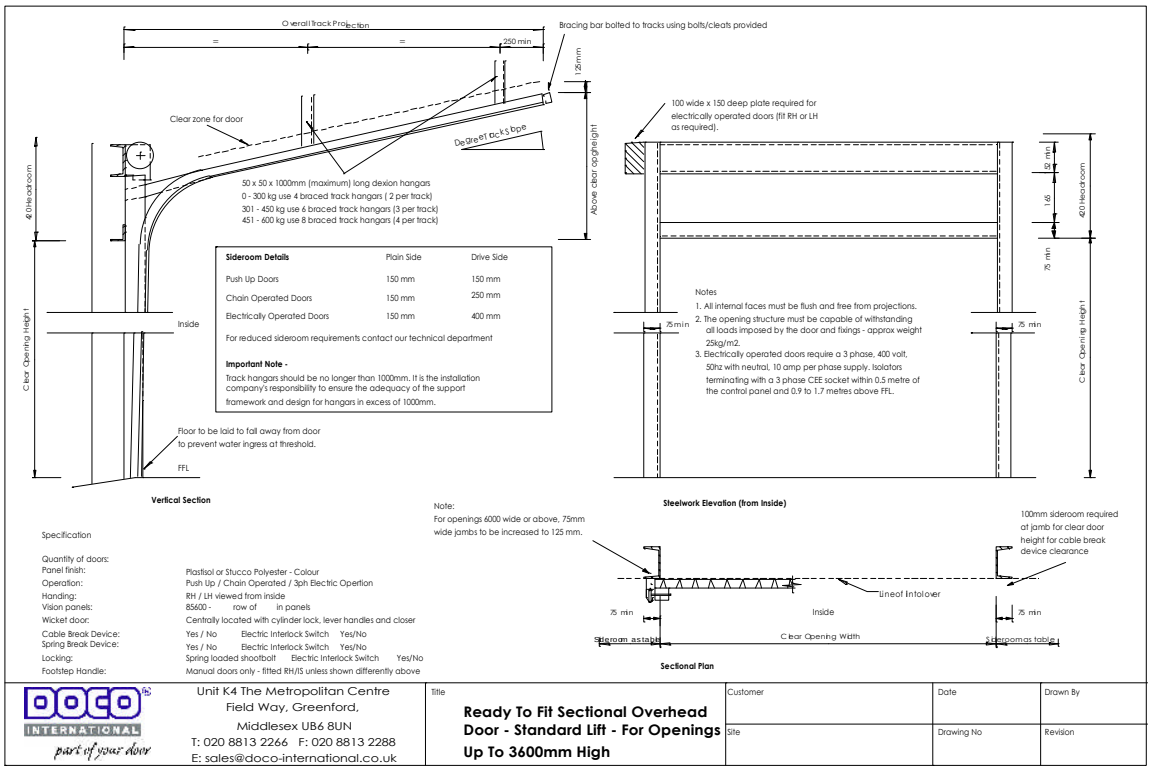
4.4 Systems and system drawings

We use the following 5 systems (lifts):

-	Standard system	ST	see 4.4.1
-	Standard roof line system	ST pitch	see 4.4.2
-	High system	HL	see 4.4.3
-	High roof line system	HL pitch	see 4.4.4
-	Vertical system	VL	see 4.4.5

The following pages feature system drawings for the systems mentioned.

4.4.1 System drawing: Standard lift < 3600mm high


Overall Track Projection
250 min
125mm
Bracing bar bolted to tracks using bolts/cleats provided
Clear zone for door
2 Degree Rack Slope
400 Headroom
Above door opg height
50 x 50 x 1000mm (maximum) long dexion hangars
0 - 300 kg use 4 braced track hangars (2 per track)
301 - 450 kg use 6 braced track hangars (3 per track)
451 - 600 kg use 8 braced track hangars (4 per track)
Inside
Clear Opening Height
Floor to be laid to fall away from door
to prevent water ingress at threshold.
FFL
Vertical Section
100 wide x 150 deep plate required for
electrically operated doors (fit RH or LH
as required).
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding
all loads imposed by the door and fixings - approx weight
25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt,
50hz with neutral, 10 amp per phase supply. Isolators
terminating with a 3 phase CEE socket within 0.5 metre of
the control panel and 0.9 to 1.7 metres above FFL.
75 min
150
Steelwork Elevation (from Inside)
Note:
For openings 6000 wide or above, 75mm
wide jambs to be increased to 125 mm.
100mm sideroom required
at jamb for clear door
height for cable break
device clearance
Lineof Intolover
Inside
Clear Opening Width
Sectional Plan
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above

Sideroom Details	Plain Side	Drive Side
Push Up Doors	150 mm	150 mm
Chain Operated Doors	150 mm	250 mm
Electrically Operated Doors	150 mm	400 mm

For reduced sideroom requirements contact our technical department

Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.

DOCO INTERNATIONAL part of your door
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Field Way, Greenford,
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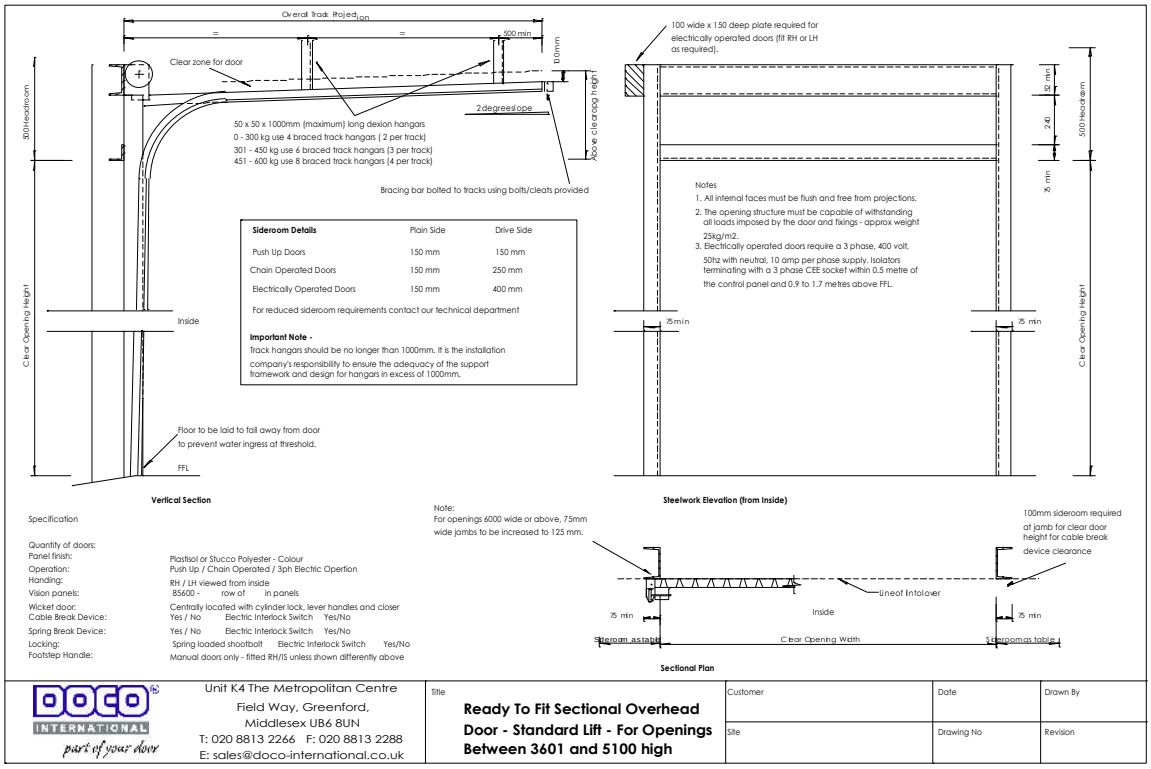
E: sales@doco-international.co.uk

Title	Customer	Date	Drawn By
Ready To Fit Sectional Overhead Door - Standard Lift - For Openings Up To 3600mm High	Site	Drawing No	Revision

Standard Drawing No 10003/v1.0

4.4.1 System drawing: Standard lift >3600 < 5100mm high


Overall Track Projection
500 min
Bracing bar bolted to tracks using bolts/cleats provided
Clear zone for door
2 Degree Slope
500 Headroom
Above clearopg height
50 x 50 x 1000mm (maximum) long dexion hangars
0 - 300 kg use 4 braced track hangars (2 per track)
301 - 450 kg use 6 braced track hangars (3 per track)
451 - 600 kg use 8 braced track hangars (4 per track)
Inside
Clear Opening Height
Floor to be laid to fall away from door
to prevent water ingress at threshold.
FFL
Vertical Section
100 wide x 150 deep plate required for
electrically operated doors (fit RH or LH
as required).
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding
all loads imposed by the door and fixings - approx weight
25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt,
50hz with neutral, 10 amp per phase supply. Isolators
terminating with a 3 phase CEE socket within 0.5 metre of
the control panel and 0.9 to 1.7 metres above FFL.
75 min
240
Steelwork Elevation (from Inside)
Note:
For openings 6000 wide or above, 75mm
wide jambs to be increased to 125 mm.
100mm sideroom required
at jamb for clear door
height for cable break
device clearance
Lineof Intolover
Inside
Clear Opening Width
Sectional Plan
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above

Sideroom Details	Plain Side	Drive Side
Push Up Doors	150 mm	150 mm
Chain Operated Doors	150 mm	250 mm
Electrically Operated Doors	150 mm	400 mm

For reduced sideroom requirements contact our technical department

Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.

DOCO INTERNATIONAL part of your door
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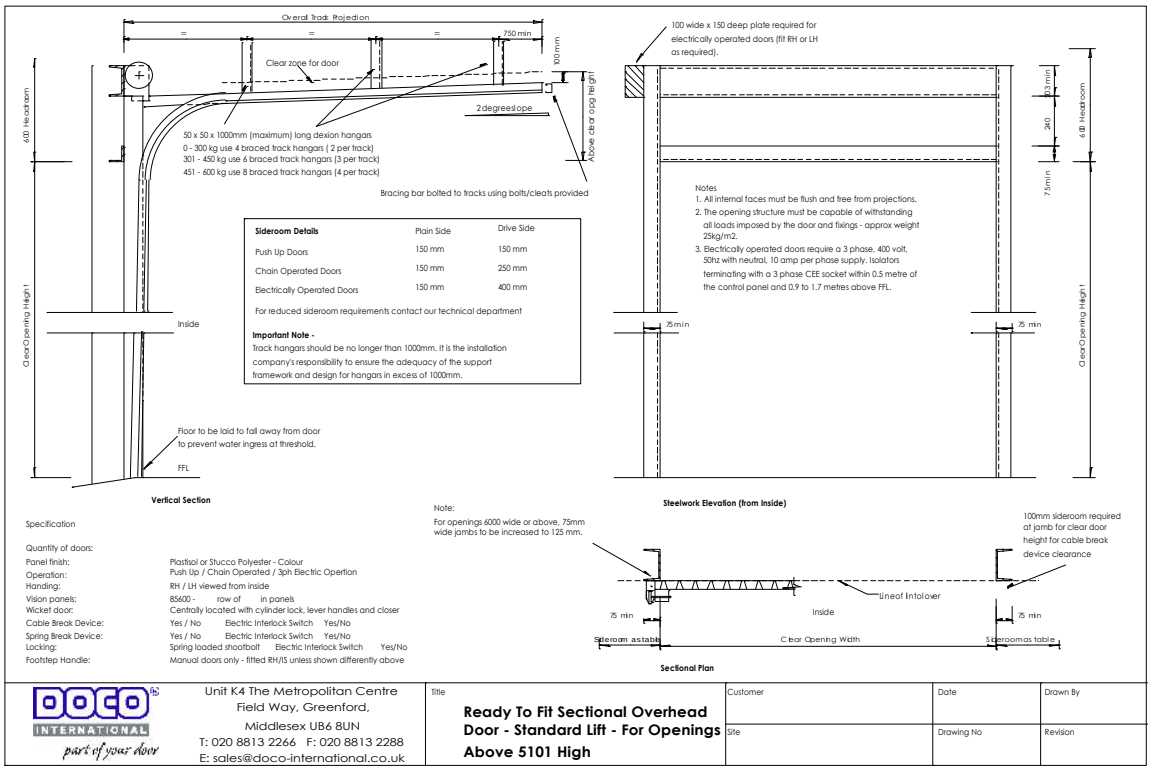
Title	Customer	Date	Drawn By
Ready To Fit Sectional Overhead Door - Standard Lift - For Openings Between 3601 and 5100 high	Site	Drawing No	Revision

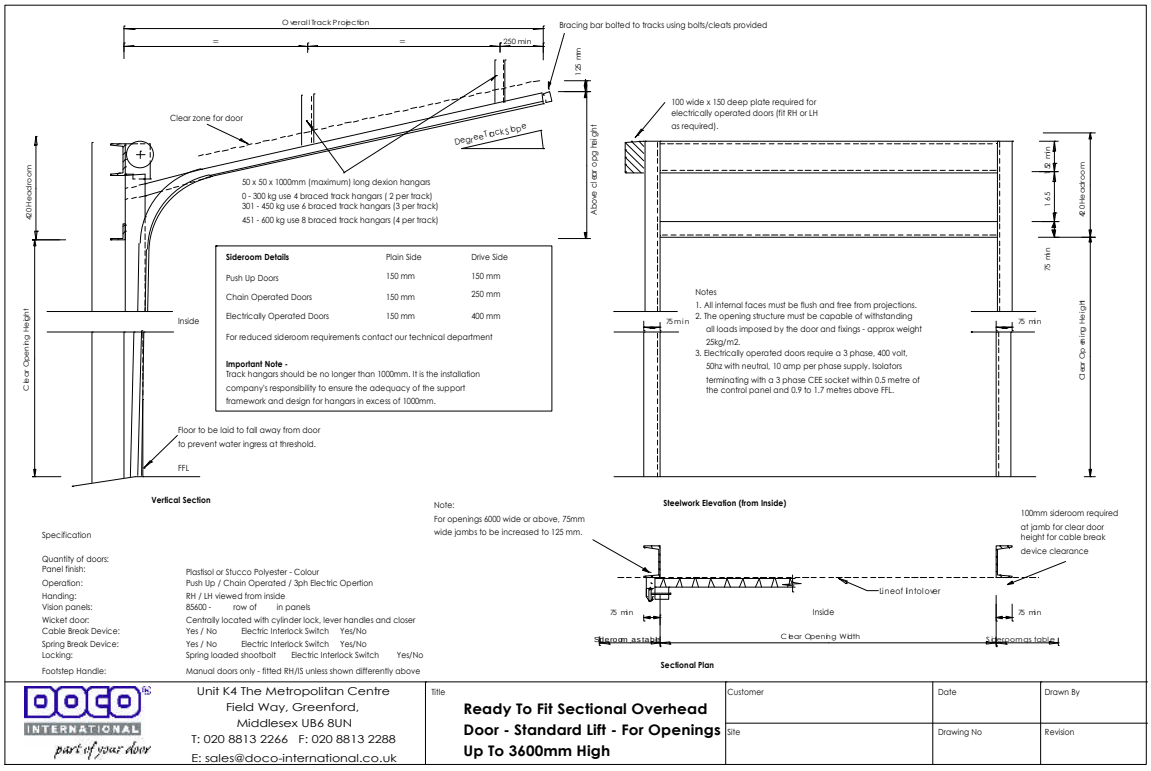
Standard Drawing No 10001/v1.0

4.4.1 System drawing: Standard lift >5100mm high


Overall Track Projection
750 min
Clear zone for door
100 mm
2 degree slope
Above clear opg height
50 x 50 x 1000mm (maximum) long dexion hangars
0 - 300 kg use 4 braced track hangars (2 per track)
301 - 450 kg use 6 braced track hangars (3 per track)
451 - 600 kg use 8 braced track hangars (4 per track)
Bracing bar bolted to tracks using bolts/cleats provided
600 Headroom
Clear Opening Height
Inside
Floor to be laid to fall away from door
to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details | Plain Side | Drive Side
Push Up Doors | 150 mm | 150 mm
Chain Operated Doors | 150 mm | 250 mm
Electrically Operated Doors | 150 mm | 400 mm
For reduced sideroom requirements contact our technical department
Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
75 min
240
600 Headroom
75 min
Clear Opening Height
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
75 min
75 min
Steelwork Elevation (from Inside)
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Lineof Intolover
75 min
Inside
75 min
Sideroom astable
Clear Opening Width
Sideroomas table
Sectional Plan
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
part of your door
Title
Ready To Fit Sectional Overhead Door - Standard Lift - For Openings Above 5101 High
Customer
Site
Date
Drawing No
Drawn By
Revision

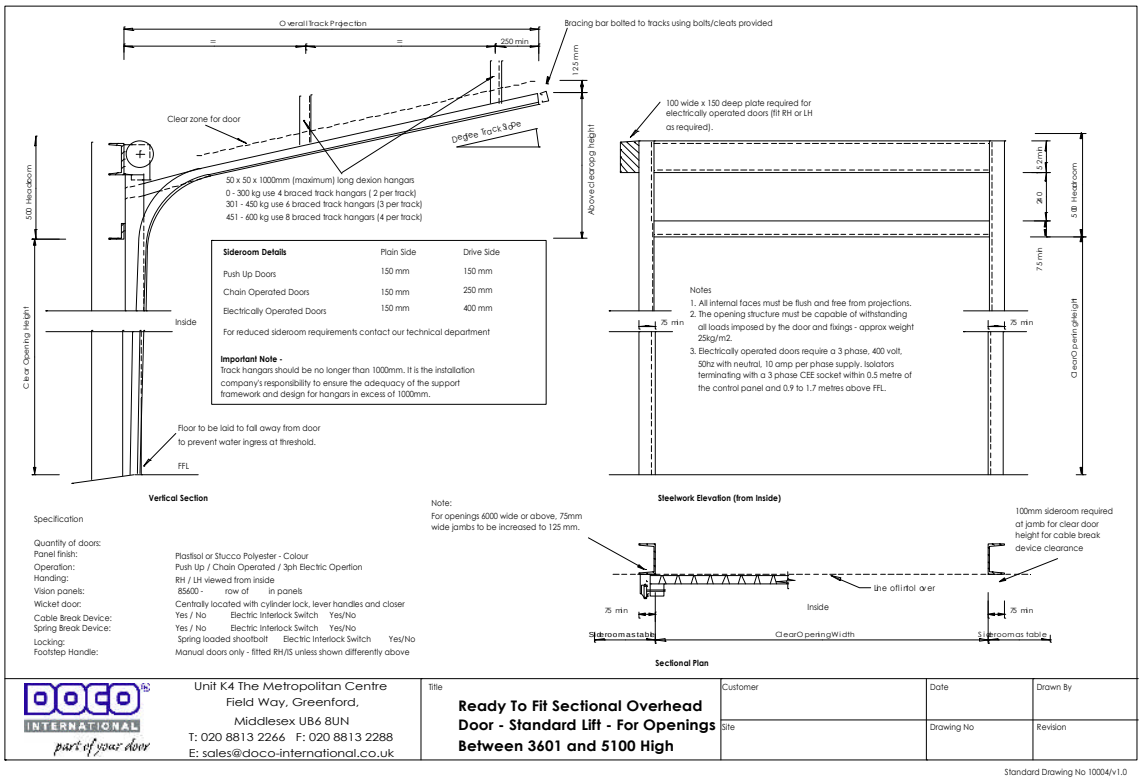
Standard Drawing No 10002/v1.0

4.4.2 System drawing: Standard lift < 3600mm high with pitched back tracks


Overall Track Projection
250 min
Bracing bar bolted to tracks using bolts/cleats provided
125 mm
Clear zone for door
Degree pack slope
Above clear opg height
50 x 50 x 1000mm (maximum) long dexion hangars
0 - 300 kg use 4 braced track hangars (2 per track)
301 - 450 kg use 6 braced track hangars (3 per track)
451 - 600 kg use 8 braced track hangars (4 per track)
400 Headroom
Clear Opening Height
Inside
Floor to be laid to fall away from door
to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details | Plain Side | Drive Side
Push Up Doors | 150 mm | 150 mm
Chain Operated Doors | 150 mm | 250 mm
Electrically Operated Doors | 150 mm | 400 mm
For reduced sideroom requirements contact our technical department
Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
90 min
165
400 Headroom
75 min
Clear Opening Height
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
75min
75 min
Steelwork Elevation (from Inside)
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Lineof Intolover
75 min
Inside
75 min
Sideroom astable
Clear Opening Width
Sideroomas table
Sectional Plan
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
part of your door
Title
Ready To Fit Sectional Overhead Door - Standard Lift - For Openings Up To 3600mm High
Customer
Site
Date
Drawing No
Drawn By
Revision

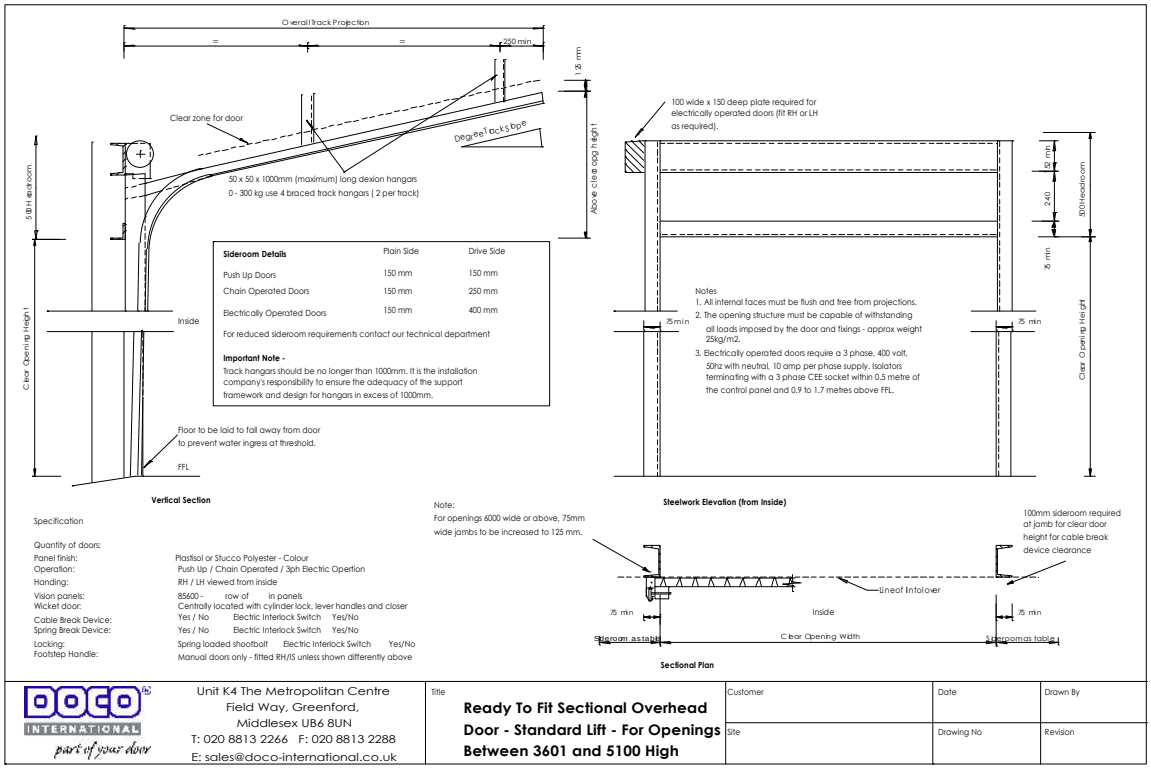
Standard Drawing No 10003/v1.0

4.4.2 System drawing: Standard lift >3600 < 5100mm high with pitched back tracks

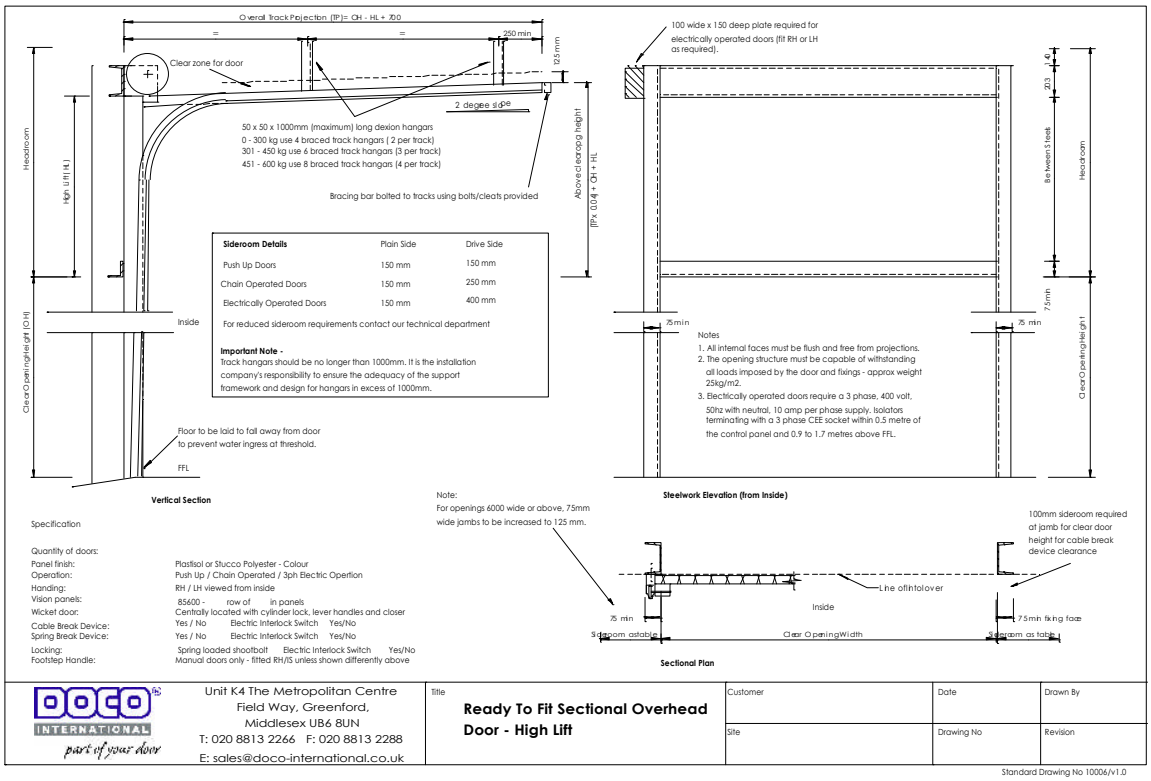

Overall Track Projection
250 min
Bracing bar bolted to tracks using bolts/cleats provided
125 mm
Clear zone for door
Degree track slope
50 x 50 x 1000mm (maximum) long dexion hangars
0 - 300 kg use 4 braced track hangars (2 per track)
301 - 450 kg use 6 braced track hangars (3 per track)
451 - 600 kg use 8 braced track hangars (4 per track)
Above clearopng height
500 Headroom
Clear Opening Height
Inside
Floor to be laid to fall away from door
to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details | Plain Side | Drive Side
Push Up Doors | 150 mm | 150 mm
Chain Operated Doors | 150 mm | 250 mm
Electrically Operated Doors | 150 mm | 400 mm
For reduced sideroom requirements contact our technical department
Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
75 min
240
500 Headroom
Clear Opening Height
Steelwork Elevation (from Inside)
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Operton
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Sideroom as table
Clear Opening Width
Sectional Plan
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
Title
Ready To Fit Sectional Overhead Door - Standard Lift - For Openings Between 3601 and 5100 High
Customer
Date
Drawn By
Site
Drawing No
Revision

Standard Drawing No 10004/v1.0

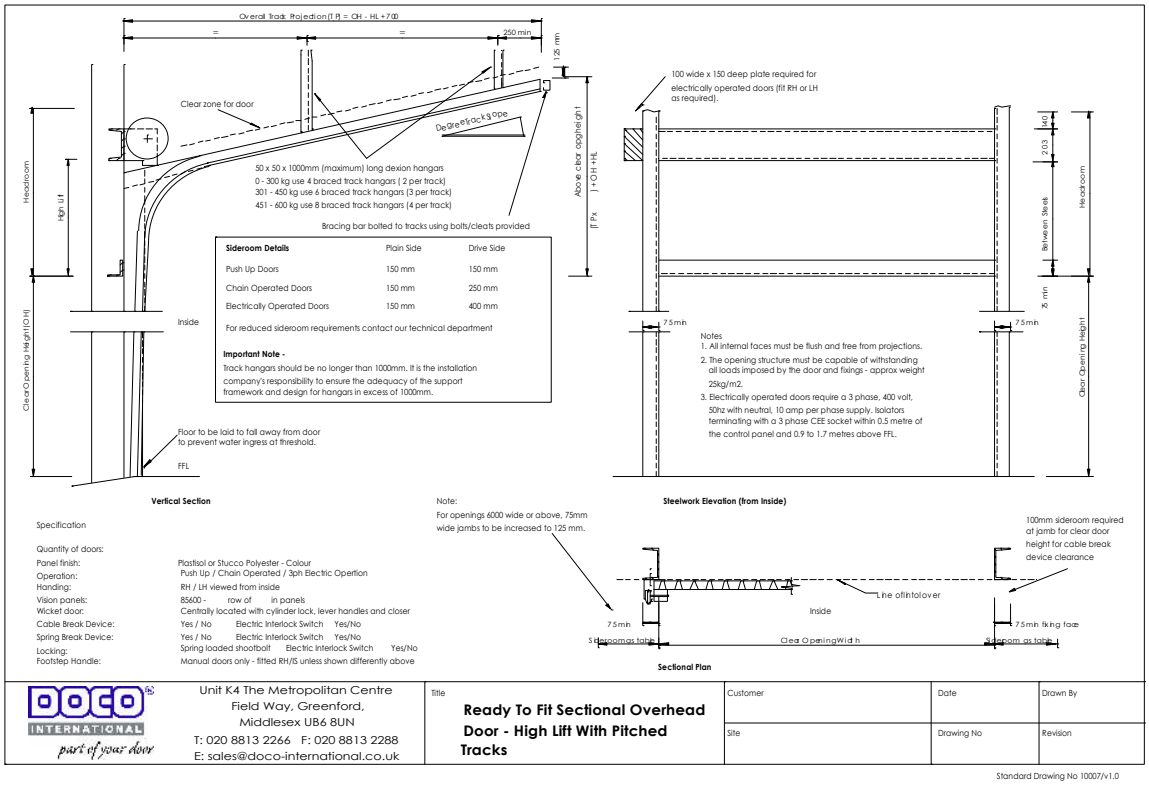
4.4.2 System drawing: Standard lift >5100mm high with pitched back tracks


Overall Track Projection
250 min
125 mm
Clear zone for door
Degree track slope
50 x 50 x 1000mm (maximum) long dexion hangars
0 - 300 kg use 4 braced track hangars (2 per track)
Above clear opng height
500 Headroom
Clear Opening Height
Inside
Floor to be laid to fall away from door
to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details | Plain Side | Drive Side
Push Up Doors | 150 mm | 150 mm
Chain Operated Doors | 150 mm | 250 mm
Electrically Operated Doors | 150 mm | 400 mm
For reduced sideroom requirements contact our technical department
Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
75 min
240
500 Headroom
Clear Opening Height
Steelwork Elevation (from Inside)
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Operton
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Sideroom as table
Clear Opening Width
Sectional Plan
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
Title
Ready To Fit Sectional Overhead Door - Standard Lift - For Openings Between 3601 and 5100 High
Customer
Date
Drawn By
Site
Drawing No
Revision

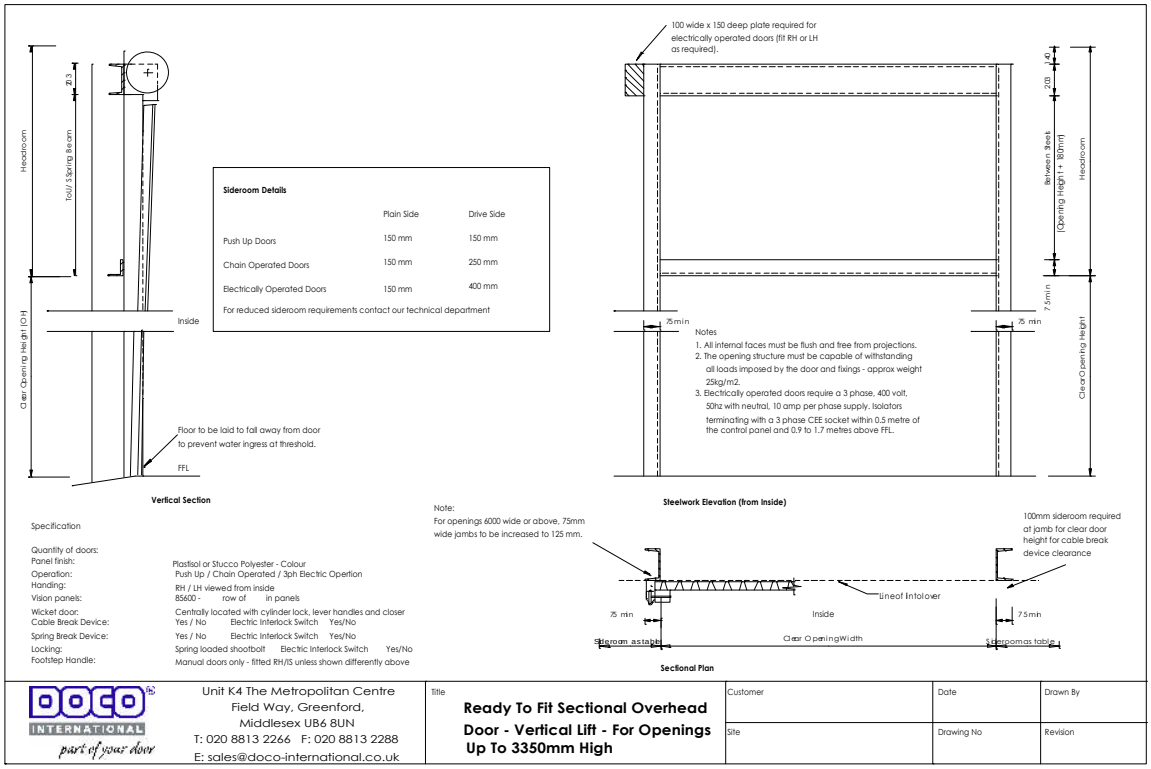
4.4.3 System drawing: High lift


Overall Track Projection (TP)= OH - HL + 700
250 min
125 mm
Clear zone for door
2 degree slope
50 x 50 x 1000mm (maximum) long dexion hangers
0 - 300 kg use 4 braced track hangars (2 per track)
301 - 450 kg use 6 braced track hangars (3 per track)
451 - 600 kg use 8 braced track hangars (4 per track)
Bracing bar bolted to tracks using bolts/cleats provided
Above clearing height (TP)= 0.04 + OH + HL
Headroom
High Lift (HL)
Clear Opening Height (OH)
Inside
Floor to be laid to fall away from door to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details | Plain Side | Drive Side
Push Up Doors | 150 mm | 150 mm
Chain Operated Doors | 150 mm | 250 mm
Electrically Operated Doors | 150 mm | 400 mm
For reduced sideroom requirements contact our technical department
Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
Between Steels
75min
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
Steelwork Elevation (from Inside)
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Line of Int Tolover
Clear Opening Width
7.5mm fixing face
Sideroom as table
Sectional Plan
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
Title
Ready To Fit Sectional Overhead Door - High Lift
Customer
Site
Date
Drawing No
Drawn By
Revision
Standard Drawing No 10006/v1.0

4.4.4 System drawing: High lift with pitched back tracks

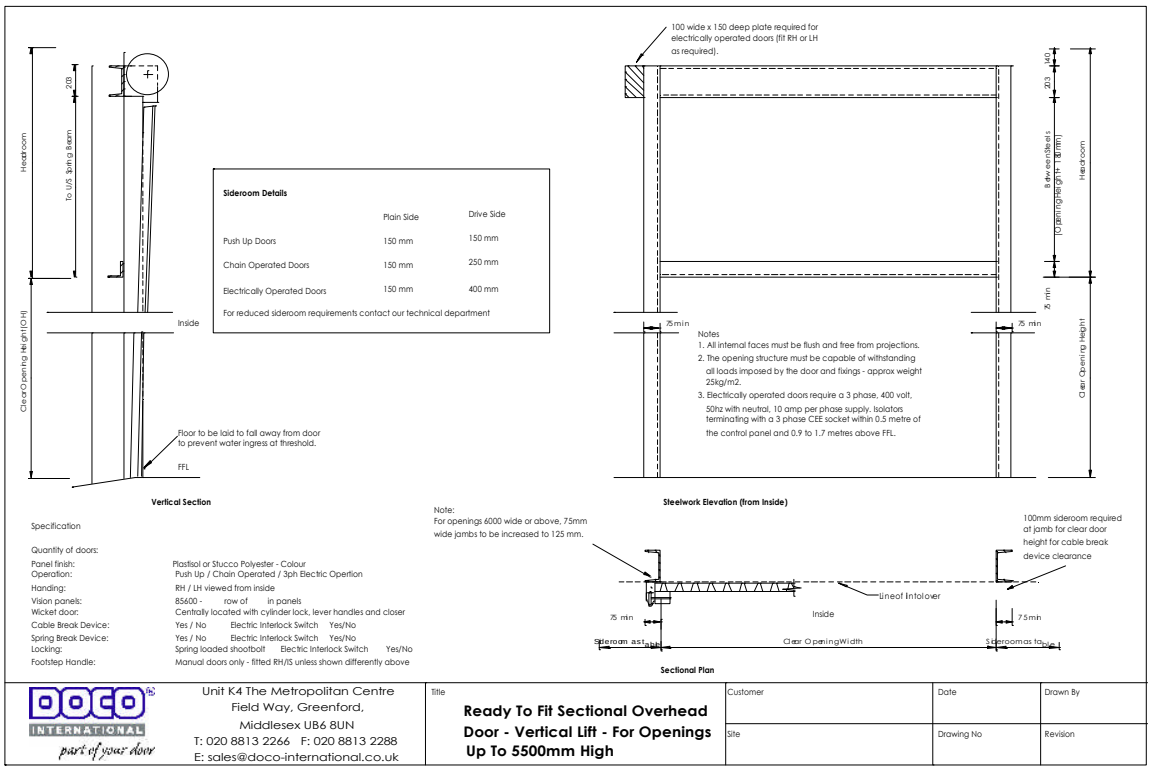

Overall Track Projection (TP) = OH - HL + 700
250 min
125 mm
Clear zone for door
Degree track Slope
50 x 50 x 1000mm (maximum) long dexion hangers
0 - 300 kg use 4 braced track hangars (2 per track)
301 - 450 kg use 6 braced track hangars (3 per track)
451 - 600 kg use 8 braced track hangars (4 per track)
Bracing bar bolted to tracks using bolts/cleats provided
Above clear opening height (TP)= OH +HL
Headroom
High Lift
Clear Opening Height (OH)
Inside
Floor to be laid to fall away from door to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details | Plain Side | Drive Side
Push Up Doors | 150 mm | 150 mm
Chain Operated Doors | 150 mm | 250 mm
Electrically Operated Doors | 150 mm | 400 mm
For reduced sideroom requirements contact our technical department
Important Note -
Track hangars should be no longer than 1000mm. It is the installation company's responsibility to ensure the adequacy of the support framework and design for hangars in excess of 1000mm.
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
Between Steels
75 min
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
Steelwork Elevation (from Inside)
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Line of Int Tolover
Clear Opening Width
7.5mm fixing face
Sideroom as table
Sectional Plan
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
Title
Ready To Fit Sectional Overhead Door - High Lift With Pitched Tracks
Customer
Site
Date
Drawing No
Drawn By
Revision
Standard Drawing No 10007/v1.0

4.4.5 System drawing: Vertical lift < 3350mm


Headroom
To U/S Spring Beam
Clear Opening Height (OH)
Inside
Floor to be laid to fall away from door to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details
Plain Side
Drive Side
Push Up Doors 150 mm 150 mm
Chain Operated Doors 150 mm 250 mm
Electrically Operated Doors 150 mm 400 mm
For reduced sideroom requirements contact our technical department
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
Between Steels (Opening Height + 80mm)
Headroom
Clear Opening Height
75 min
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
Steelwork Elevation (from Inside)
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: BS600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Lineof Intolover
Inside
Clear OpeningWidth
Sectional Plan
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
Title
Ready To Fit Sectional Overhead Door - Vertical Lift - For Openings Up To 3350mm High
Customer
Date
Drawn By
Site
Drawing No
Revision

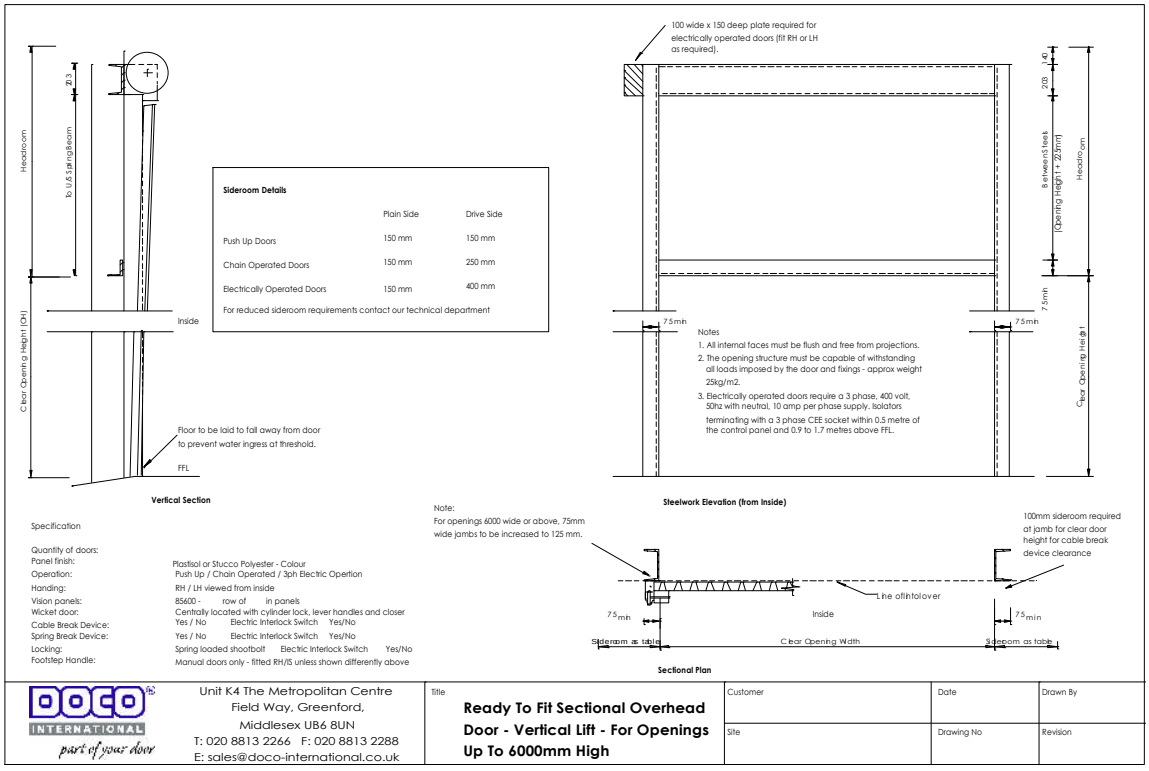
Standard Drawing No 10008/v1.0

4.4.5 System drawing: Vertical lift > 3500mm < 5500mm


Headroom
To U/S Spring Beam
Clear Opening Height (OH)
Inside
Floor to be laid to fall away from door to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details
Plain Side
Drive Side
Push Up Doors 150 mm 150 mm
Chain Operated Doors 150 mm 250 mm
Electrically Operated Doors 150 mm 400 mm
For reduced sideroom requirements contact our technical department
100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
Between Steels (Opening Height + 80mm)
Headroom
Clear Opening Height
75 min
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
Steelwork Elevation (from Inside)
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: BS600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Lineof Intolover
Inside
Clear OpeningWidth
Sectional Plan
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
Title
Ready To Fit Sectional Overhead Door - Vertical Lift - For Openings Up To 5500mm High
Customer
Date
Drawn By
Site
Drawing No
Revision

Standard Drawing No 10009/v1.0

4.4.5 System drawing: Vertical lift > 5500mm < 6000mm


100 wide x 150 deep plate required for electrically operated doors (fit RH or LH as required).
Headroom
203
To U/S Spring Beam
Inside
Clear Opening Height (OH)
Floor to be laid to fall away from door to prevent water ingress at threshold.
FFL
Vertical Section
Sideroom Details
Plain Side
Drive Side
Push Up Doors
150 mm
150 mm
Chain Operated Doors
150 mm
250 mm
Electrically Operated Doors
150 mm
400 mm
For reduced sideroom requirements contact our technical department
Between Steels (Opening Height + 225mm)
Headroom
7.5mm
Clear Opening Height
Notes
1. All internal faces must be flush and free from projections.
2. The opening structure must be capable of withstanding all loads imposed by the door and fixings - approx weight 25kg/m2.
3. Electrically operated doors require a 3 phase, 400 volt, 50hz with neutral, 10 amp per phase supply. Isolators terminating with a 3 phase CEE socket within 0.5 metre of the control panel and 0.9 to 1.7 metres above FFL.
Steelwork Elevation (from Inside)
Specification
Quantity of doors:
Panel finish: Plastisol or Stucco Polyester - Colour
Operation: Push Up / Chain Operated / 3ph Electric Opertion
Handing: RH / LH viewed from inside
Vision panels: 85600 - row of in panels
Wicket door: Centrally located with cylinder lock, lever handles and closer
Cable Break Device: Yes / No Electric Interlock Switch Yes/No
Spring Break Device: Yes / No Electric Interlock Switch Yes/No
Locking: Spring loaded shootbolt Electric Interlock Switch Yes/No
Footstep Handle: Manual doors only - fitted RH/IS unless shown differently above
Note:
For openings 6000 wide or above, 75mm wide jambs to be increased to 125 mm.
100mm sideroom required at jamb for clear door height for cable break device clearance
Line of Intolover
Inside
75mm
Sideroom as table
Clear Opening Width
Sideroom as table
Sectional Plan
Unit K4 The Metropolitan Centre
Field Way, Greenford,
Middlesex UB6 8UN
T: 020 8813 2266 F: 020 8813 2288
E: sales@doco-international.co.uk
Title
Ready To Fit Sectional Overhead Door - Vertical Lift - For Openings Up To 6000mm High
Customer
Date
Drawn By
Site
Drawing No
Revision
Standard Drawing No 10010/v1.0

4.5 Installation details

- Make sure the opening for the track sets to be installed is level and that the construction is strong enough to carry the track sets.
- Ensure the floor is level and devoid of irregularities. If not, fill in.
- Before starting on the installation, assess whether the mounting place fulfils the minimum requirements (*figure1.)*

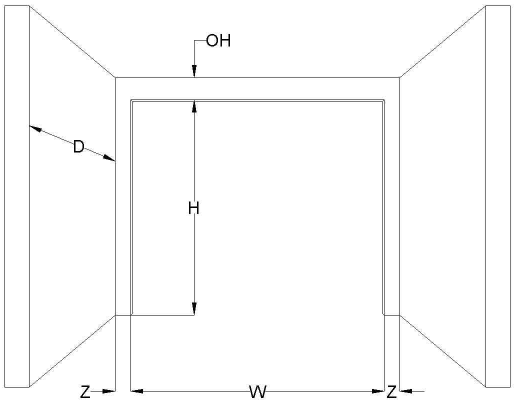


Fig 1

W = clear width
H = clear height
OH = clearance above
Z = side clearance
D = installation depth

Prior to commencing installation - check that all components have been correctly supplied against the packing list / bill of materials supplied (located in hardware box supplied with door). In the event of a discrepancy, this must be reported to Doco International for remedial action prior to installation of the door.

4.6 General installation of vertical track sets

Mark line (1) on the wall.
Then draw line (2) using a spirit level.
Then add markings (3) and (4) for the bottom alignment.
Mount the side seal to the already assembled vertical track set and if necessary cut to size.
Mount both vertical track set sections against the wall or construction ensuring they are level at point (3) and (4). Make sure they run parallel and are level in both directions. *See figures 2 and 3*

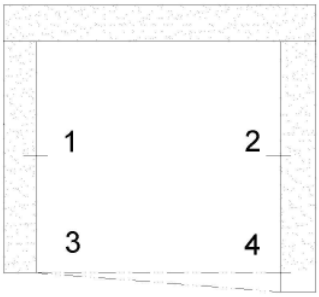


Fig 2

Ensure both track angles are parallel and at right angles with line 3-4.

Dimension E (fig.3) depends on the cable break protection used.

Cable break protection 25450: E=75
Cable break protection 25453: E=65

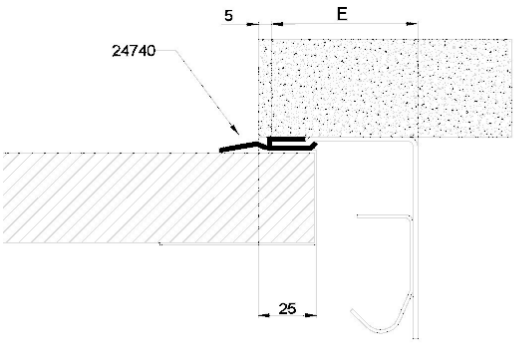


Fig 3

Fixings for vertical track sets

The fixings needed for mounting the track set to the wall or construction are not included with the door! The installer is responsible for ensuring that the opening structure is

structurally strong enough to carry the door.
The installer is also responsible for the correct fixings for the relevant structure (brick, concrete, steel, wood).

The value used for measurement depends on the wind load class and door size!
If class 2: 620 Pa = N/m² (break load)
If class 3: 965 Pa = N/m² (break load)
If class 4: 1375 Pa = N/m² (break load)

Example: door size 5000x4000 20m²
Wind load class 3

Force against door panel: ➔ F=PxA 20x620= 19300N
Refer to appendix 1 for diameter and number of fixings for vertical track sets.

OFFSET:

For all systems:
The bottom offset depends on the cable break protection used (see 4.12.3)
For type 25450: OFFSET*: 40mm
For type 25453: OFFSET*: 34mm

4.6.1 Standard lift system (ST)

The standard lift system is distinguished by the fact that, when opened, the door panel immediately goes onto the horizontal section of the track set.
The track set comprises 2 sections that are riveted/bolted together.
For the correct connecting method, see: 4.7 Connections

Installation:
The vertical section comprises the track angle with seal and guide track.
The horizontal section comprises a track with bend and a stiffening profile (c section).
These two sections are connected using a connection bracket. *See figure 4*
.

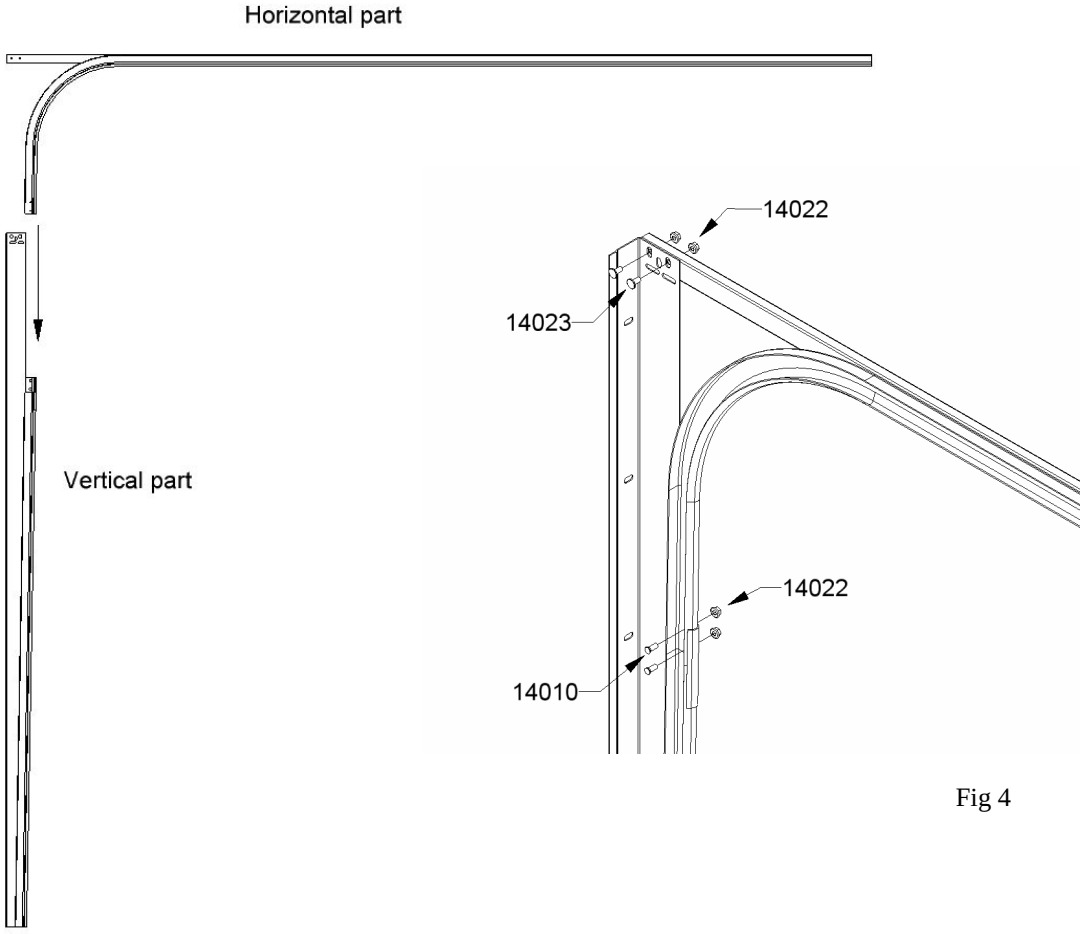


Fig 4

4.6.2 Standard lift roofline system (ST pitched)

A standard lift roofline system is identified by the fact that, when opened, the door panel immediately goes onto the 'horizontal' section of the guide track under the roof.
The track set comprises 2 sections that are riveted/bolted together.
For the correct connecting method, see: 4.7 Connections

Installation:
The vertical section comprises the track angle with seal and guide track. (Assembly using 4.6)
The 'horizontal' section comprises a track bend a stiffening profile (c section).
These two sections are connected using a connection bracket. *See figure 5.*

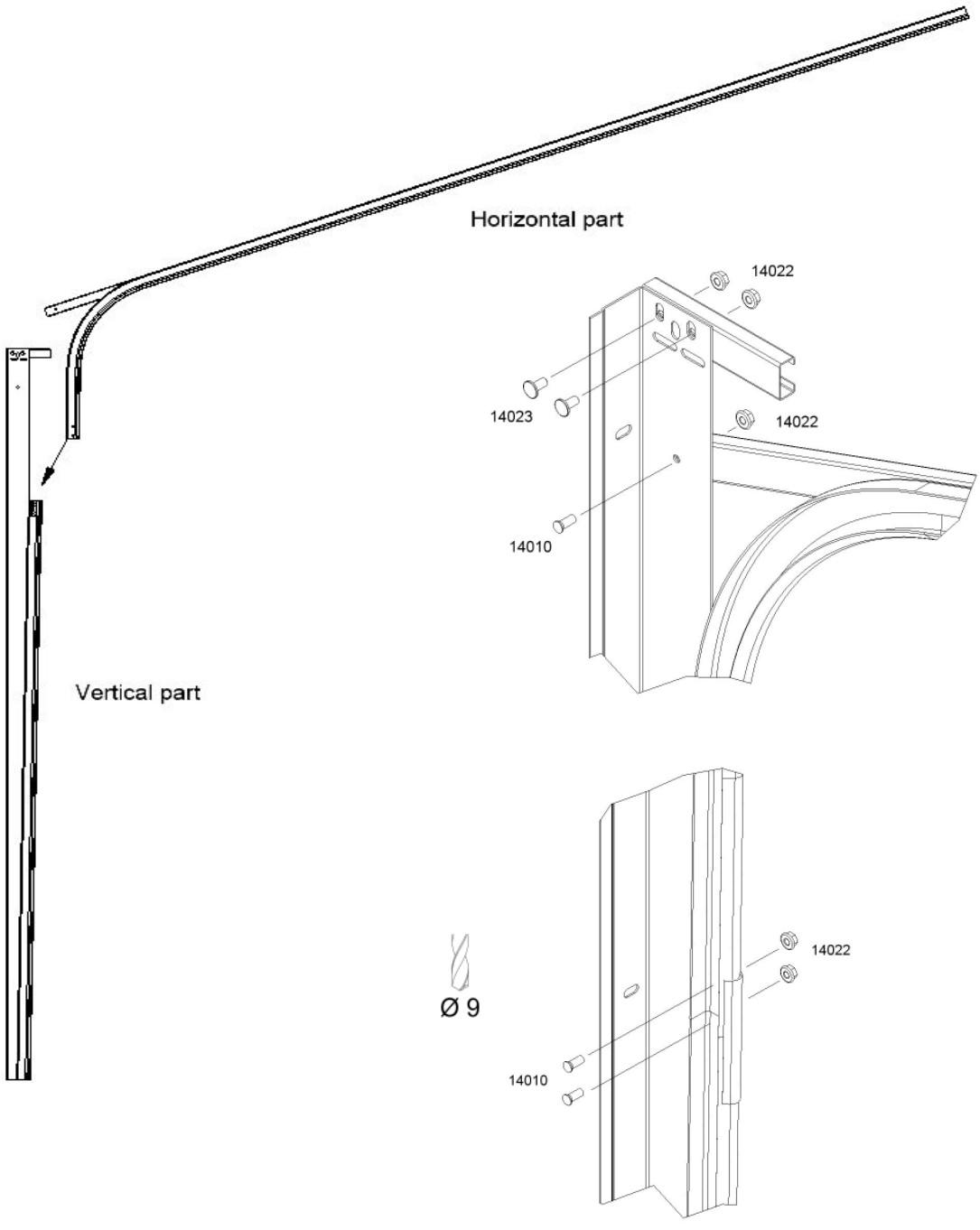


Fig 5

4.6.3 High lift (HL)

A high lift system is characterized by the fact that, when opened, the door panel goes up first before it follows the horizontal section of the track.
The track set comprises 2 sections that are riveted/bolted together.
For the correct connecting method, see: 4.7 Connections

Installation:
The vertical section comprises the track angle with seal and guide track. (Assembly using 4.6)
The 'horizontal' section comprises a bend (guide track) and a stiffening profile (c section).
These two sections are connected using a connection bracket. *See figure 4.*

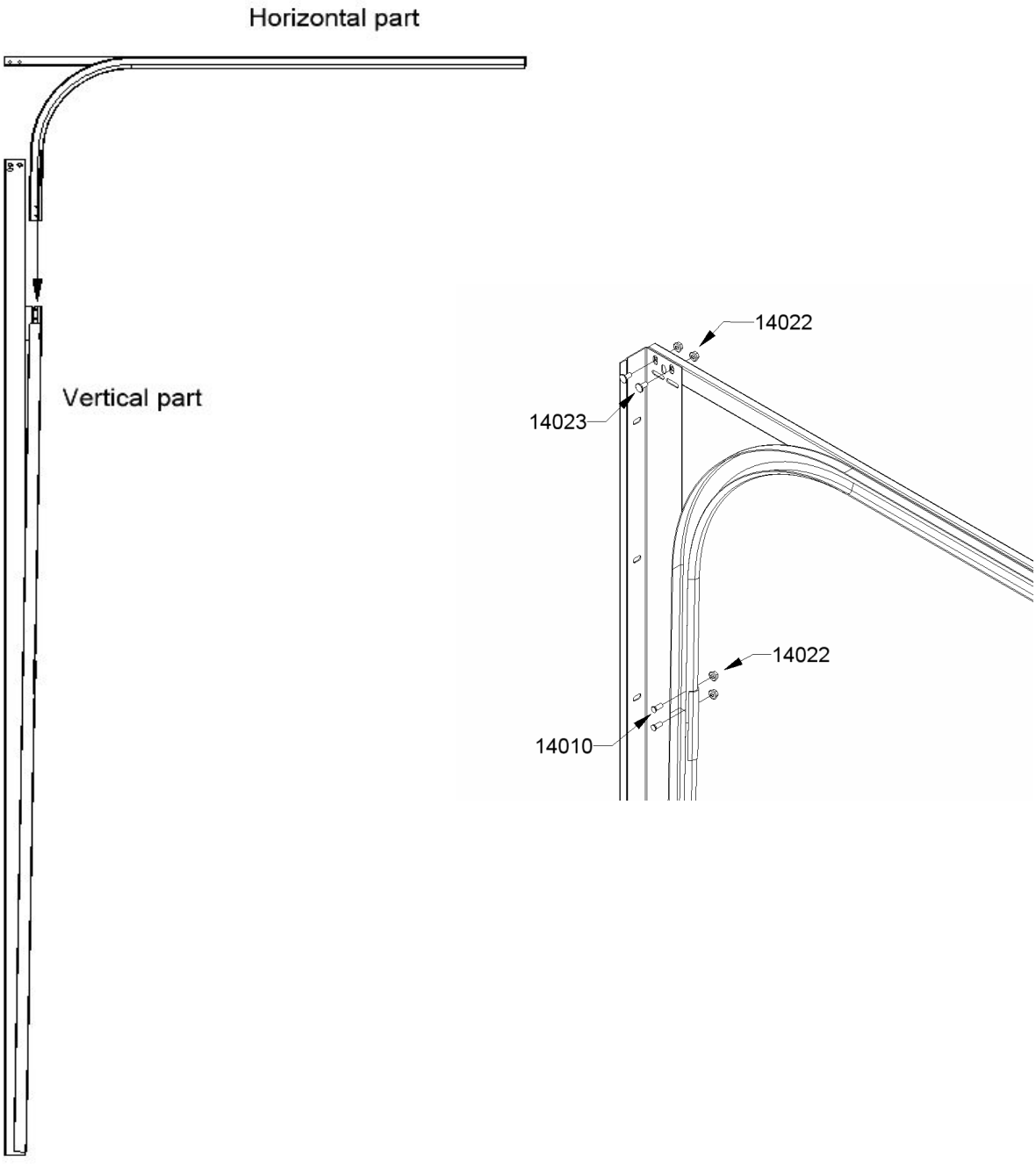


Fig 6

4.6.4 High roofline lift (HL pitched)

A high roofline system is characterized by the fact that the door panel first goes up vertically before it follows the 'horizontal' section of the track set below the edge of the roof.
The track set comprises 2 sections that are riveted/bolted together.
For the correct connecting method, see: 4.7 Connections

Installation:
The vertical section comprises the track angle with seal and guide track. (Assembly using 4.6)
The 'horizontal' section comprises a bend (guide track) and a stiffening profile (c section).
These two sections are connected using a connection bracket. *See figure 7.*

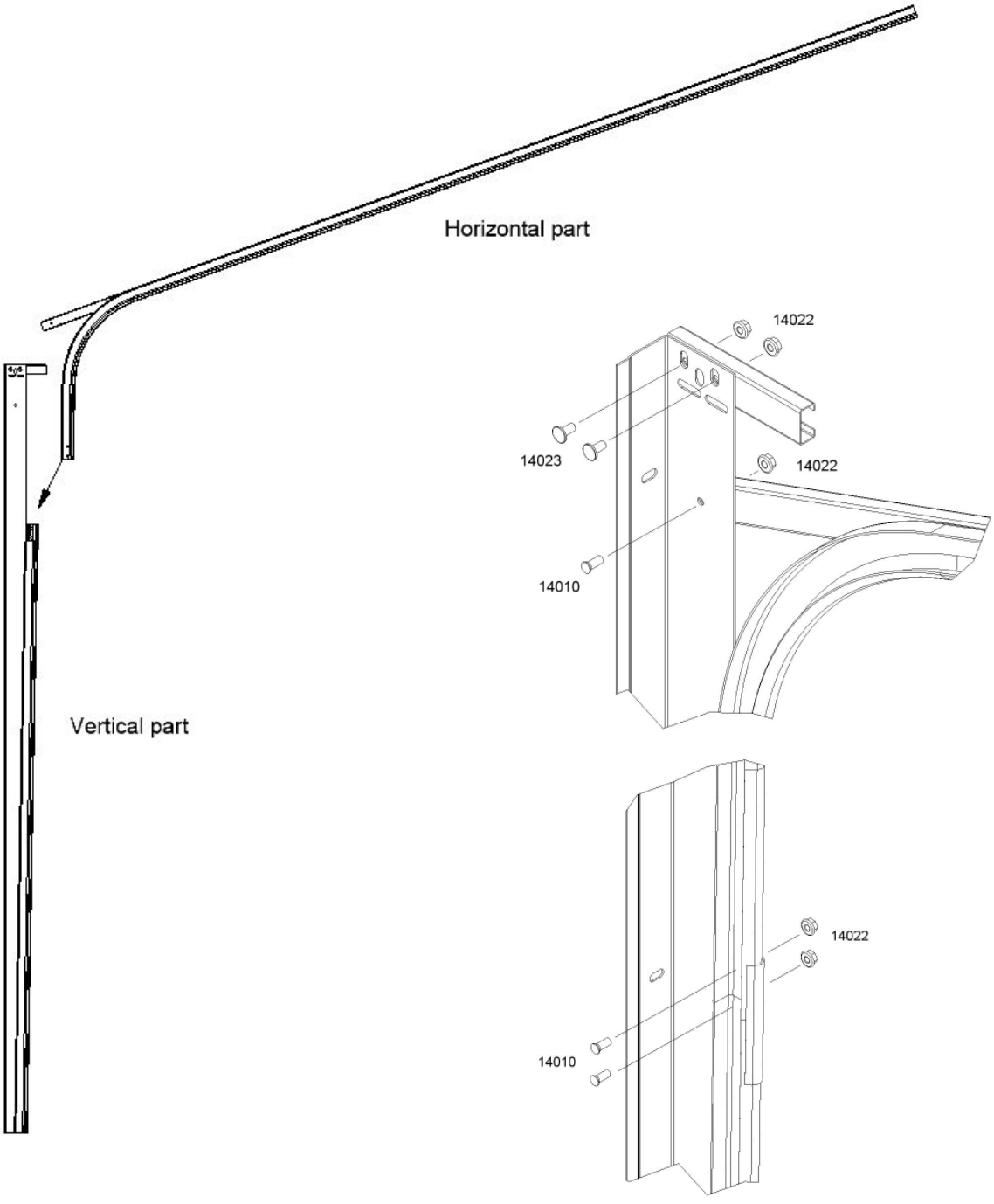
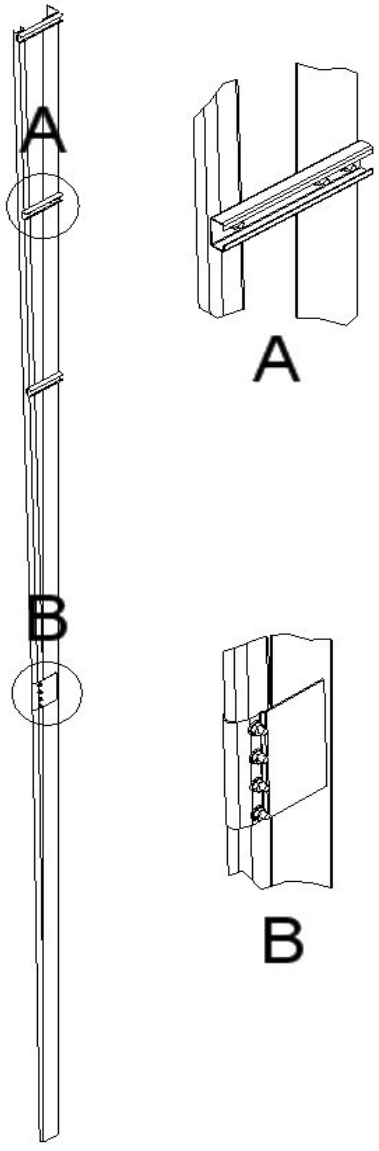


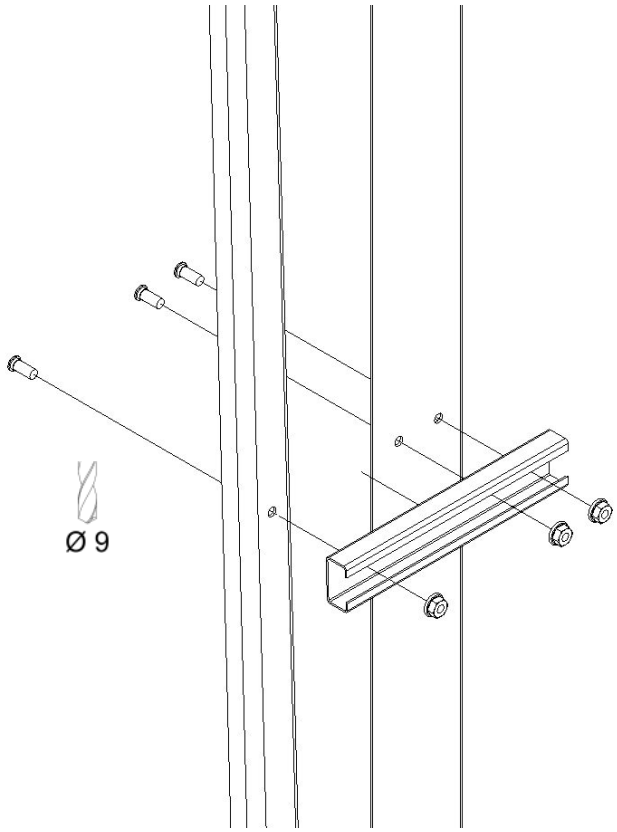
Fig 7

4.6.5 Vertical lift (VL)

A vertical system is characterized by the fact that the door panel goes up vertically.
The track set only comprises 1 section* that is riveted and bolted together.
For the correct connecting method see : 4.7 Connections

Installation:
The vertical section comprises the track angle with seal and guide track. (Assembly using 4.6)
*** Depending on the height of this system, it may be necessary to interconnect the track angles and guide tracks!**
Joint type B is used, however joint type A may be used dependant on the top track offset required, these joints are factory made *see fig 8*





4.7 Connections between guide tracks and vertical angles

For connections between track angle and opening structure: see 3.3 (General installation of vertical track sets)

To make sure the track is stable, the connections between guide tracks, track angle or inter-connections between guide tracks or track angles need to be fixed in such a way as to comply with EN 12424 (wind force).
The guide tracks and/or track angles are factory connected using rivets and or bolts.

4.8 Drop down of the horizontal track set section

The track hangars (1m long hangars max) needed for mounting this track set to the roof construction are included in this fitting set! The installer is responsible for ensuring that the structure is strong enough to carry the door. The installer is responsible for supplying and installing the correct fixings for the structure (brick, concrete, steel, wood).

Once the vertical track set section has been mounted against the wall or construction, the horizontal track set section can be mounted. Paragraph 4.7 provided information about connecting the vertical and horizontal track set sections. This paragraph gives information on how to fix the horizontal track set section to the roof construction.

- Position the horizontal track set section and fix it to the vertical track set connection bracket.
- Support the end of the horizontal track set section by temporarily hanging it from the roof construction using a rope. (see figure 9)
- Now fix the drop down track hangars to the horizontal track set section and then to the roof construction, locating lock plates 24620, bolts and nuts 14021/14022 into c section on the back of the horizontal tracks *see figures 9,10 and 11.*

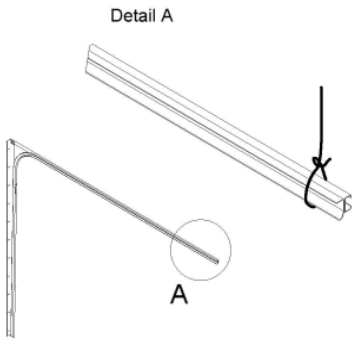


Fig 9

4.8.1 Track hangar requirements

1) 0 - 300kg use 4 braced track hangars (fig 10)
2) 301 - 450kg use 6 braced track hangars (fig 11)
3) 451 - 600kg use 8 braced track hangars (fig 12)

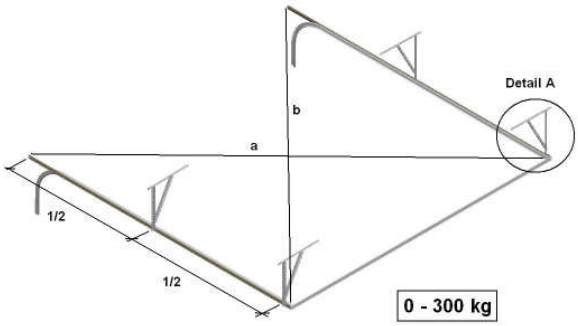


Fig 10

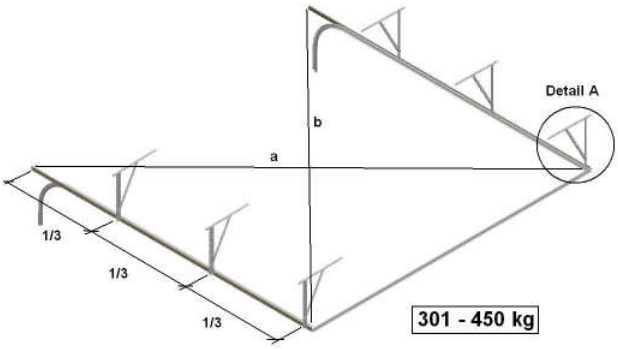


Fig 11

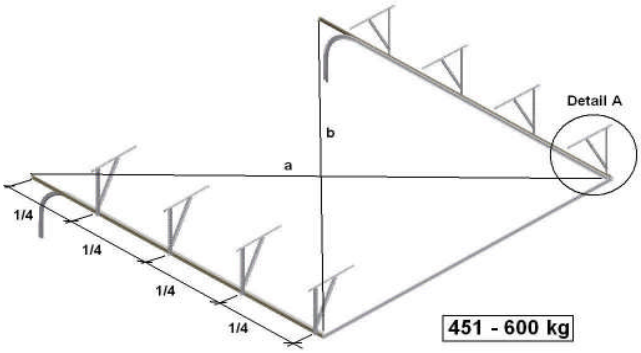
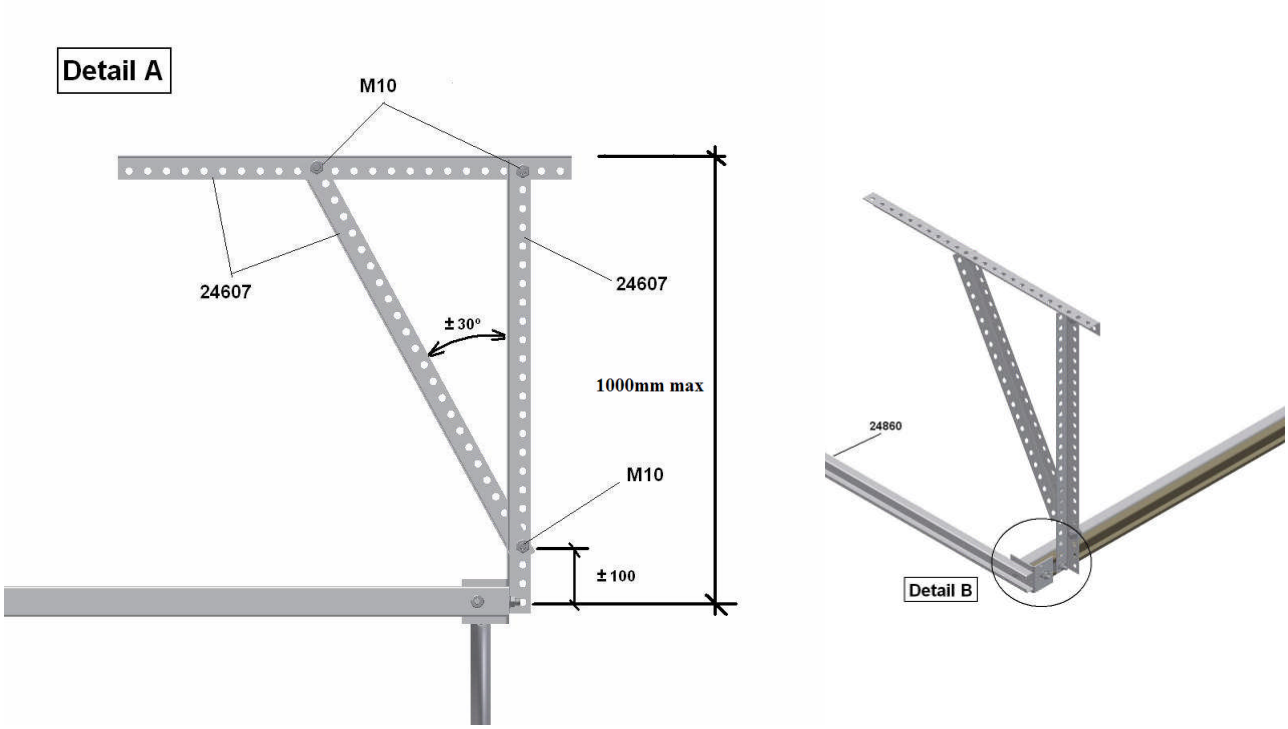
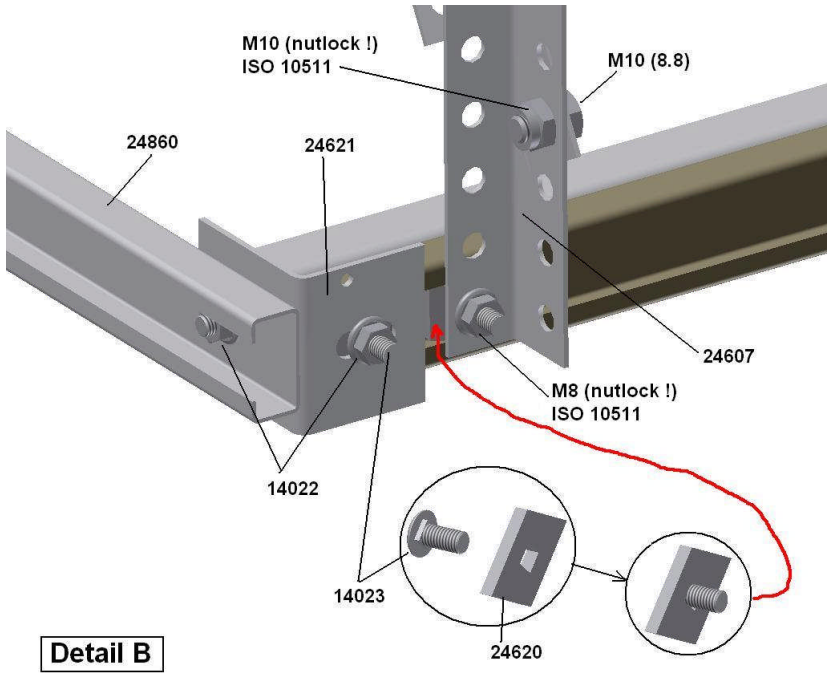


Fig 12

4.8.1 Track hangar requirements - continued

4) Ensure spring bumpers are fitted as 4.9
5) Recommended track hangar construction as detail A
6) Ensure that c section track bracing bar is fitted to prevent horizontal tracks from 'spreading'. Bracing bar should be fitted as shown in detail B. These are fitted to the horizontal track c section using 2 no angle cleats (24621), lock plates 24620, bolts and nuts 14021/14023/14022.
7) Use only M8/M10 bolts and nuts with steel quality 8.8 (Rm = 800 N/mm2 min)
8) For track hangars in excess of 1000mm it is the installation company's responsibility to ensure the adequacy of the support framework and design.

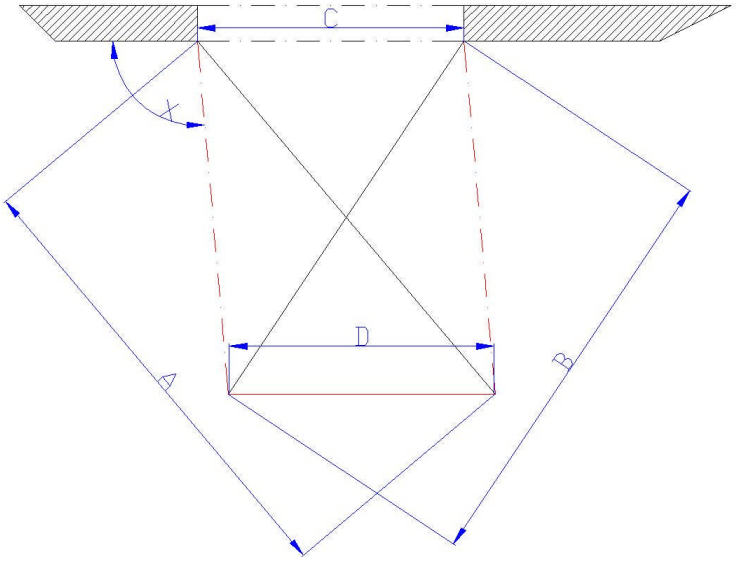




Note - ensure that all 24620/14021 lock plates and bolts are correctly fitted ensuring that after locating into the c-section profile that the lock plate is turned clockwise until the two shorter edges of the lock plate seat firmly against the top and bottom of the inner c-section wall.

- Now check the following: the horizontal sections should be perpendicular to the door panel and/or wall construction surface, and X should be 90 degrees.
- Measure C and D and ensure they are equal. If not, correct the angles.
- Measure A and B and ensure they are equal. If not, correct the angles.
- Your track set is now aligned see fig 12.

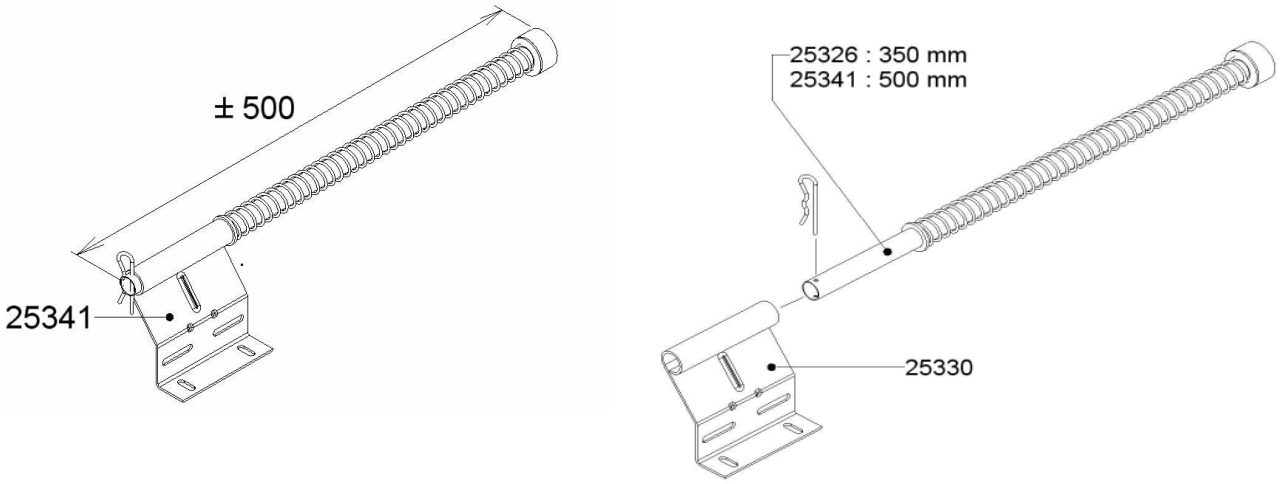
Fig 12



4.9 Spring bumpers

Fix the spring bumpers using 2x 14021 bolts + 24620 lock plates and 2 x 14022 nut.
The following spring bumpers may be used depending on track configuration – refer to the bill of materials supplied with the door for the actual type used.

- 25330+ 25326 universal short version (unit) C track or angle installation
- 25330+ 25341 universal short version (unit) C track or angle installation



When installed spring bumpers should be approximate 80-90% depressed for electrically operated doors and 50% depressed for manually operated doors when the door is in the fully open position - adjustment to the spring bumper position may be required.

4.10 Spring set (spring assembly)

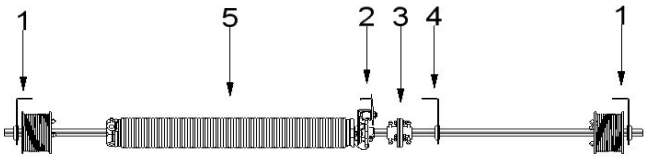
Depending on the size and weight of your sectional door, the configuration of the 'spring assembly' may look different.
Before starting the final installation, we will first discuss the various components needed to assemble the 'power unit'. First, we will discuss the configurations, followed by the various components.

4.10.1 Configurations

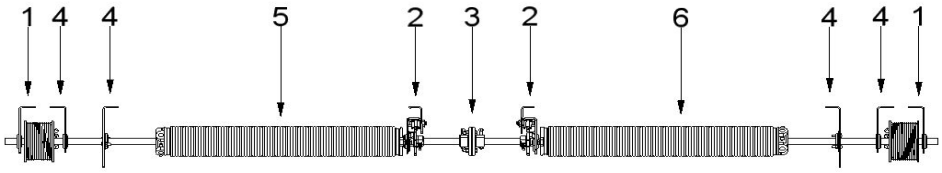
- Shaft with one torsion spring
- Shaft with two torsion springs
- Shaft with four torsion springs

Use the figures below to assess which is applicable to you.

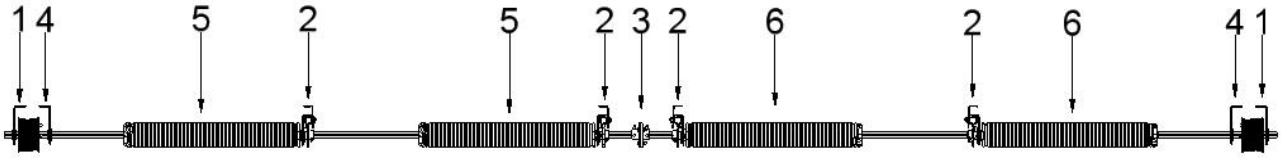
Shaft with one torsion spring.
(Coupler optional dependant on width)



Shaft with two torsion springs.
(Coupler optional dependant on width)



Shaft with four torsion springs



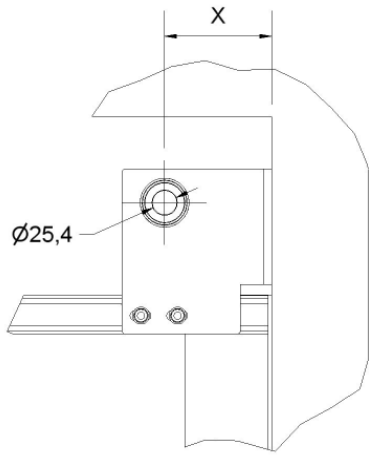
General description:

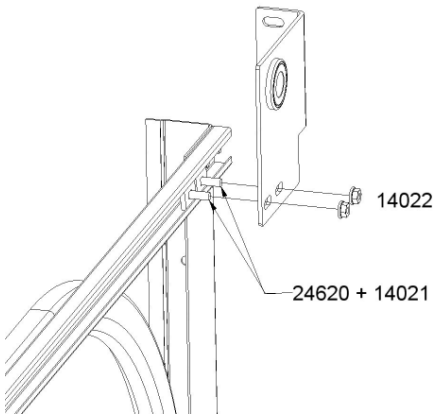
1 : Side bearing console
2 : Spring break protection units with or without offset plate
3 : Couplings (fixed or adjustable) – supply dependant on door width
4 : Centre/support consoles (number required on door weight)
5 : Right Wound Torsion Springs (RHW)
6 : Left Wound Torsion Springs (LHW)

Offset (X)	1	2	3	4	5	6
86	13001 or 13025 + 13026/27	25449	25017 or 25034 or 25042	13013 or 13025 + 13026/27	RHW	LHW
111	13002 or 13025 + 13026/27	25448 + 25449	25017 or 25034 or 25042	13014 or 13025 + 13026/27	RHW	LHW
127	13003 or 13025 + 13026/27	25448 + 25449	25017 or 25034 or 25042	13015 or 13025 + 13026/27	RHW	LHW
152	13004 or 13025 + 13026/27	25448 + 25449	25017 or 25034 or 25042	13016 or 13025 + 13026/27	RHW	LHW
190	13005	25448 + 25449	25017 or 25034 or 25042	13017	RHW	LHW

4.10.2 Side bearing plates

Installation is carried out using lock plates (24620) with bolts (14021) and nuts (14022,14015) *see figure.*

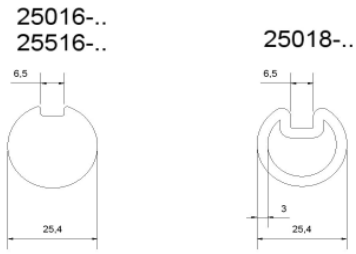




4.10.3 Shafts

Available shafts:

- Hollow shaft with key way 25018- ..
- Solid black shaft 25016- ..
- Solid galvanized shaft 25516- ..



4.10.4 Keys

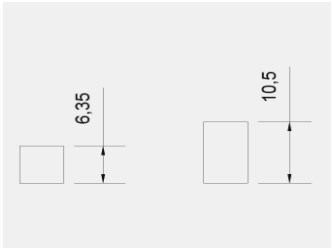
The purpose of the key is to transmit drive power. Depending on the selected shaft, the correct key should be selected.

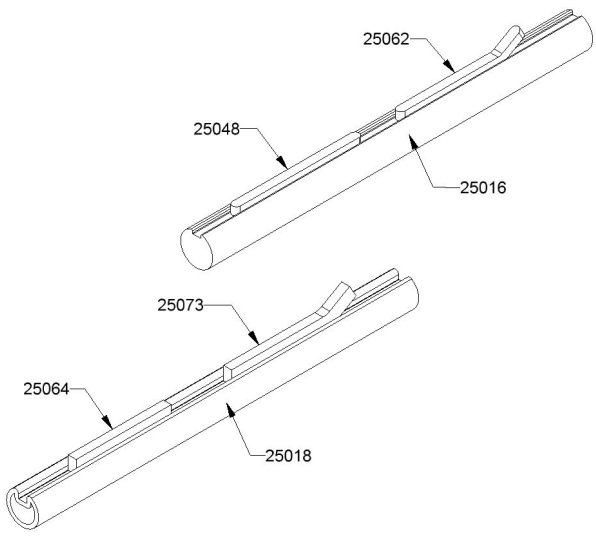
For the hollow shaft with key way : 10.5 key height

- 25064 straight version
- 25073 bent version

For the solid shaft : 6.35 key height

- 25048 straight version
- 25062 bent version





4.10.5 Spring break protection 25449

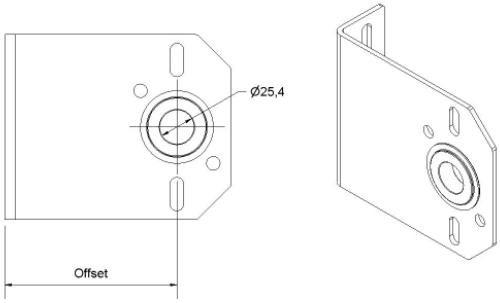
For detailed installation and maintenance instructions, see: Spring break protection manual 25449

4.10.6 Centre/support consoles

Centre/support consoles are designed to give the shaft adequate support (bearing) so the shaft can turn freely without noticeable sagging.
General guideline: 1 centre/support console per 1800mm. (bearing point)
PS spring break protections also count as bearing points.

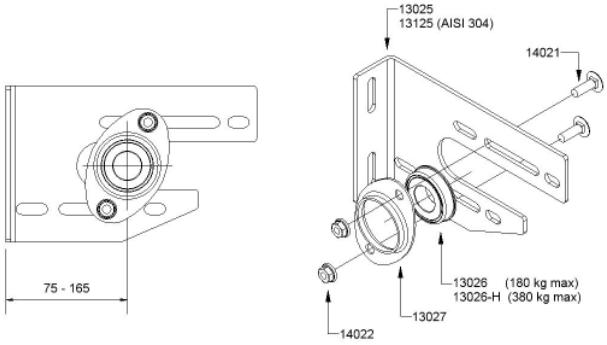
Centre/support consoles with fixed offset (see figure on the right)

13013 : offset 86 max load: 130kg/st
13014 : offset 111 max load: 120kg/st
13015 : offset 127 max load: 110kg/st
13016 : offset 152 max load: 100kg/st



Adjustable support console (see figure below)

Max load: 150kg/each



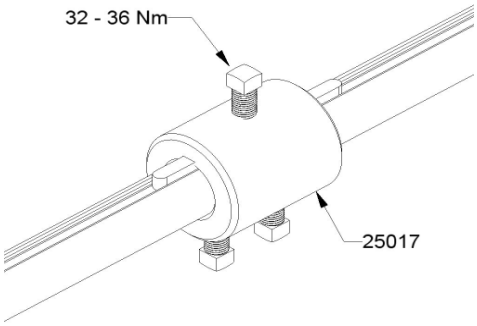
4.10.7 Couplings

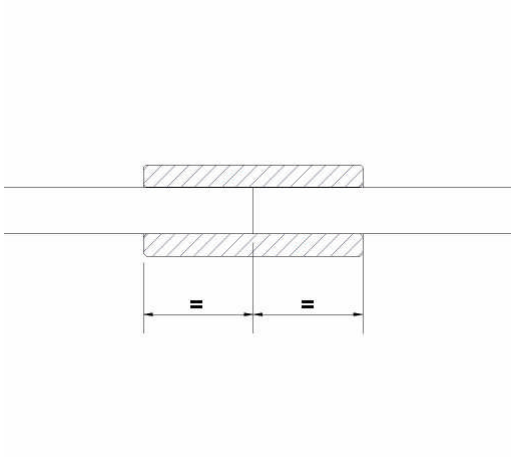
The purpose of couplings is to create a connection between two shaft sections.
There are two types available, namely fixed couplings and adjustable couplings.

Fixed coupling:
- item 25017
- item 25034

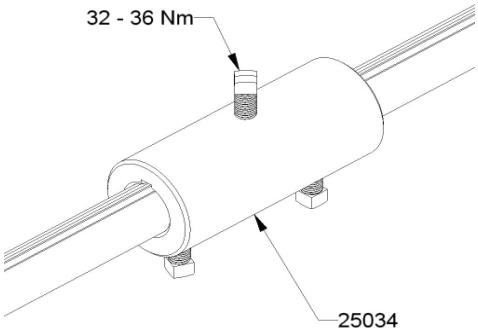
Adjustable coupling:
- item 25042

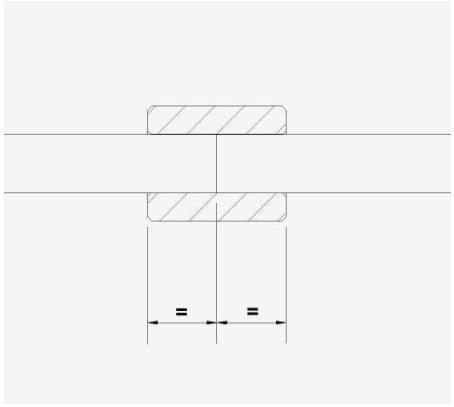
25017 – Fixed Coupler



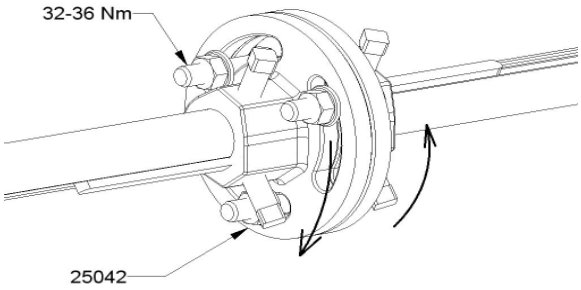


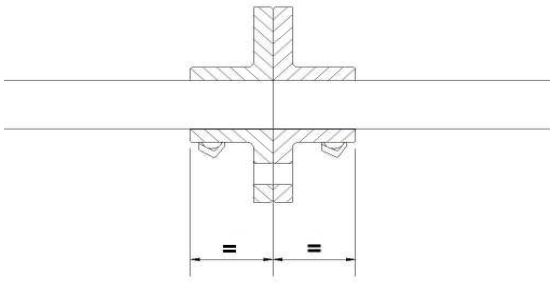
25034 – Fixed Coupler





25042 - Adjustable Coupler

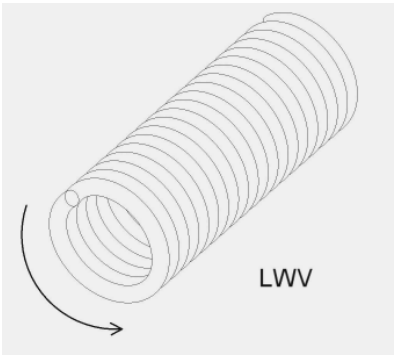


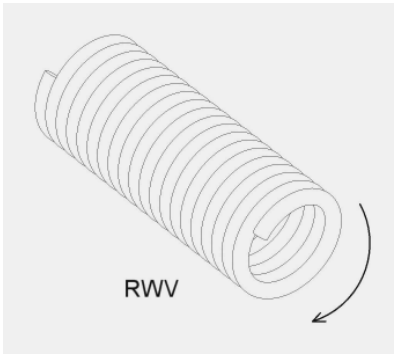


4.10.8 Torsion springs

Individually calculated using Doco International DOOR PROCESSING computer programme.

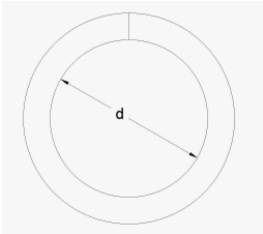
Torsion springs are supplied in left-handed and right-handed versions.
A left-handed spring can be identified as follows:
Follow the end of the spring back to its centre. If it turns anti-clockwise, then it is a left-handed spring. If it goes in clockwise, it is a right-handed spring.
This is clarified in the figures below.



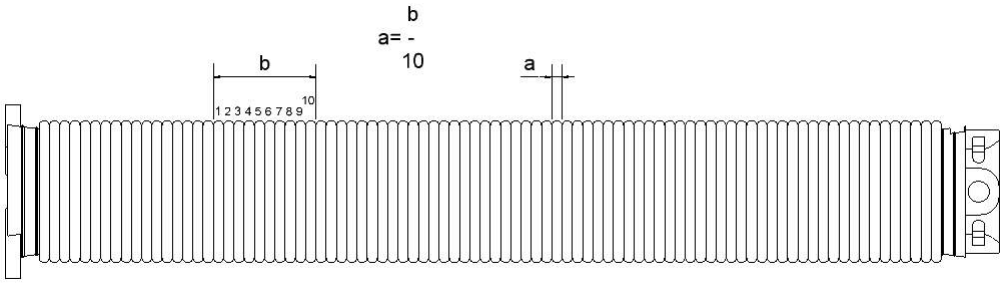


Springs are available in the following sizes:

diameter		item series
- 50.8mm	2”	32….
- 67mm	2 5/8”	33….
- 95.25mm	3 3/4”	34….
- 133.35mm	5 ¼”	35….
- 152.40mm	6”	36….



Checking the wire thickness (a) :
The best way is to count 10 windings (b) when untensioned, and measure them.
Then divide this measured value by 10: the result (a) gives you the thickness of the wire. *See figure below*



Stationary Plug Winding Plug

Manufactured torsion springs should be identified by a label attached to it.
This label will state the following:

- left or right-handed spring
- spring diameter (d)
- wire thickness (wd)
- spring length (L)
- number of windings of the spring (turns)
- order number
- sectional door dimensions (DMW x DMH)
- your reference number

see label:

4.10.9 Cable drums

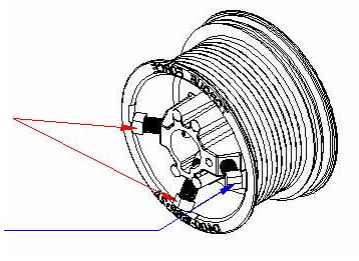
All Cable drums are based on 0.5 safety windings!**

** *Equal to 2 windings* ***TUV SUD approved*** *// Ref: TUV: BB-FTA-MUC/re-sc 30604_Besch_torque.doc*

Cable drum : Standard lift

Shaft fixing red:
Screw: 3/8–16-UNC
Torque: 27 – 34 Nm
Socket wrench: 7/16

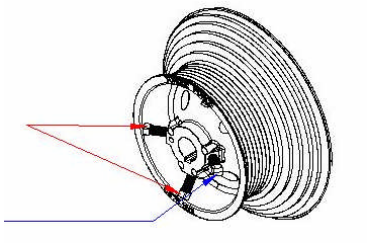
Cable fixing blank:
Screw: 3/8–16-UNC
Torque: 13 Nm
Socket wrench: 7/16



Cable drum: high lift

Shaft fixing red:
Screw: 3/8–16-UNC
Torque: 27 – 34 Nm
Socket wrench: 7/16

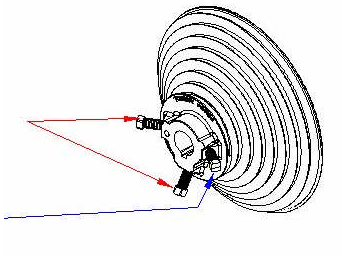
Cable fixing blank:
Screw: 3/8–16-UNC
Torque: 13 Nm
Socket wrench: 7/16



Cable drum: vertical lift

Shaft fixing red:
Screw: 3/8–16-UNC
Torque: 27 – 34 Nm
Socket wrench: 7/16

Cable fixing blank:
Screw: 3/8–16-UNC
Torque: 13 Nm
Socket wrench: 7/16

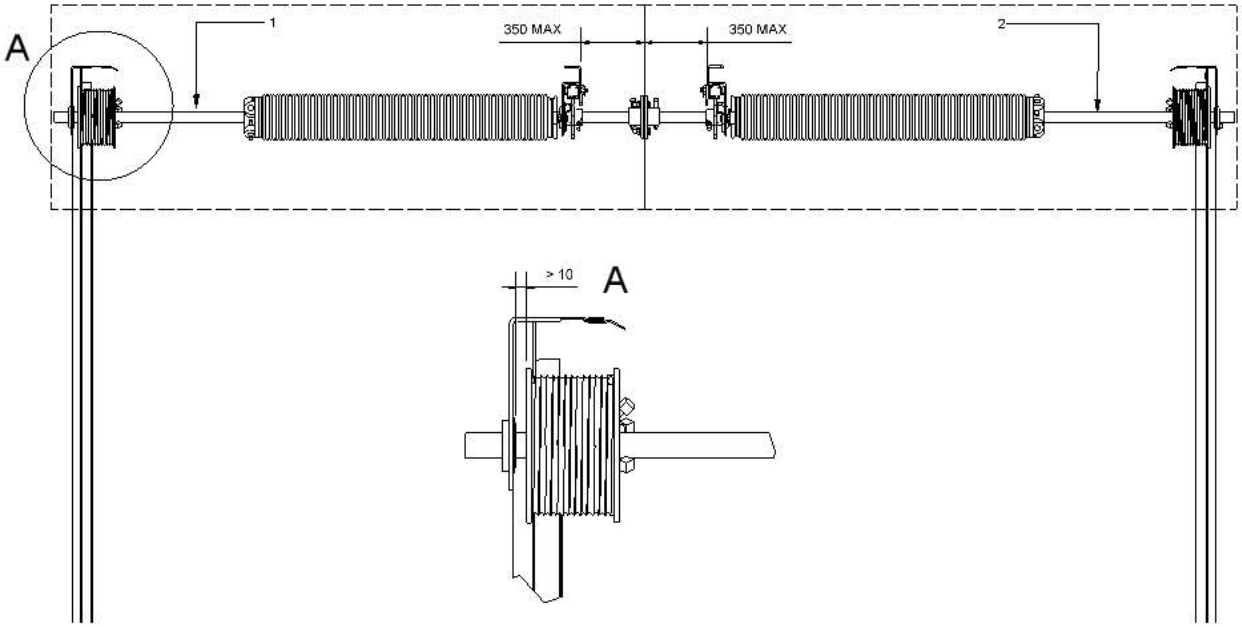


Lift type	Cable drum	Max. height	Max. high lift	Max. door weight	Max. cable diameter	Bearing distance
Standard	11014	3700 mm		340 kg	4 mm	67 mm
Standard	11002	5100 mm		680 kg	5 mm	86 mm
Standard	11003	9866 mm		1100 kg	6 mm	127 mm
High lift	11005	4275- HL mm	1375 mm	250 kg	4 mm	86 mm
High lift	11006	5948- HL mm	1375 mm	455 kg	5 mm	111 mm
High lift	11007	6708- HL mm	3050 mm	455 kg	5 mm	127 mm
High lift	11008	9755- HL mm	3050 mm	1000 kg	6 mm	152 mm
High lift	11004	14148-HL mm	4165 mm	728 kg	6 mm	152 mm
Vertical lift	11009	3350 mm		386 kg	5 mm	127 mm
Vertical lift	11010	5559 mm		600 kg	5 mm	127 mm
Vertical lift	11012	8534 mm		1000 kg	6 mm	178 mm

4.10.10 Spring set assembly (spring assembly):

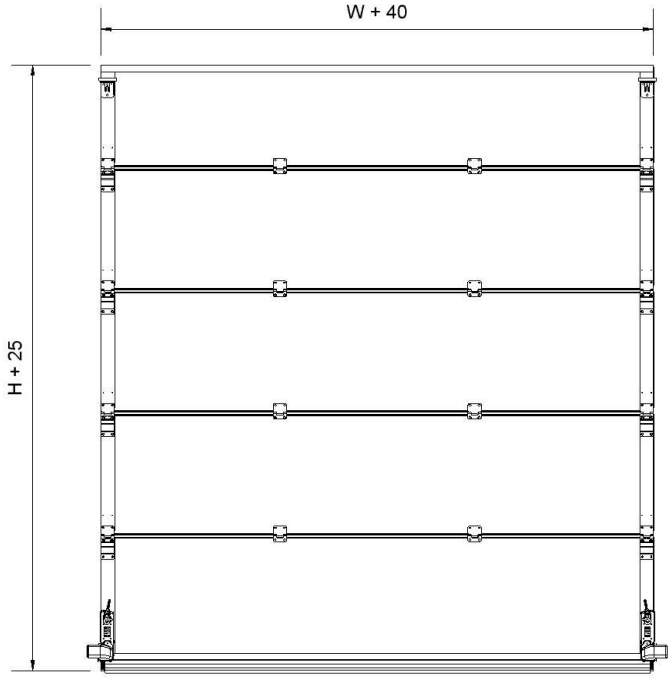
- Assemble the shafts on the ground, as in 4.10.1
- Slide the assembled shaft half (1) into the bearing of the side console and cable drum (cable drum bolts facing the spring), see detail A,
- Slide the RHW spring onto shaft (1) and fit the spring break protection console to the stationary plug. For detailed installation and maintenance instructions, see: Spring break protection manual 25449
- Slide the end bearing plate onto the shaft.
- Repeat for shaft (2) and fit both shaft halves together using the coupling.

Use SUITABLE plugs / screws or bolts / nuts for fixing to the building structure.
Use plugs of 8 or 10mm with hexagonal screws for wall mounting.
Use a minimum of M10 bolts and nuts for mounting to a steel construction (not included).



4.11 Panels (general)

In general, when using sandwich panels (steel plates with PUR foam), Ø 4.0mm holes are drilled.
The complete door panel, including aluminium profiles and bottom seal (stop) should comply with the following measurements.



4.11.1 Hardware

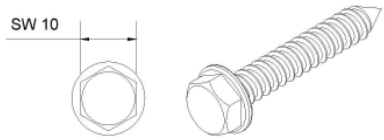
The bottom of each panel is pre- drilled to receive hinges in accordance with the following table. The top of the panel is site drilled using the intermediate hinges (screwed to the bottom of each panel) as a template.
The recommended maximum torque for the various parts is detailed in table 2.

Table 1

Door width	Number of centre hinges
0-2749	1
2749-3999	2
3999-4999	3
5000-5999	4
6000-7000	5

Table 2

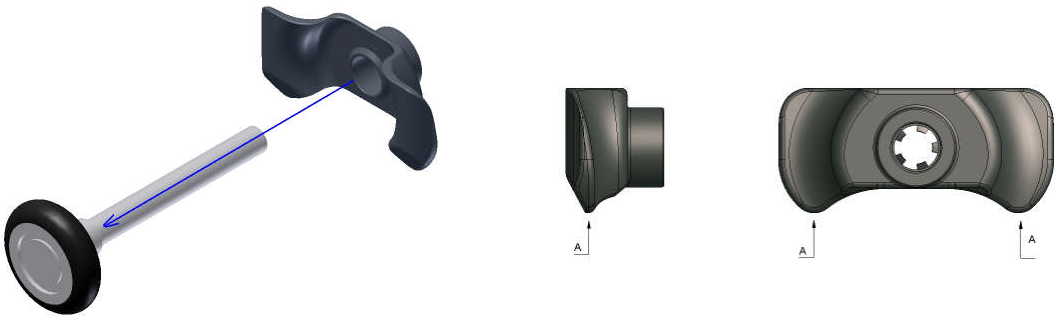
Metal screw Item. 14017	Torque
Bottom console	15Nm
Side hinge	15Nm
Centre hinge	10Nm
Top roll holder	15Nm



Roller selection:

Door panel weight <15 kg/m2	+	Door panel width <5000mm	selection:	25010-E
Door panel weight <15 kg/m2	+	Door panel width >5000 <7000mm	selection:	25011-E

Finger guards (25700) are fitted to each roller to a height of 2500mm, except at cable break protection units (8 supplied per door).
Note the position of the roller with finger guard in the track! Parts marked 'A' should be positioned in the guide section of the track.

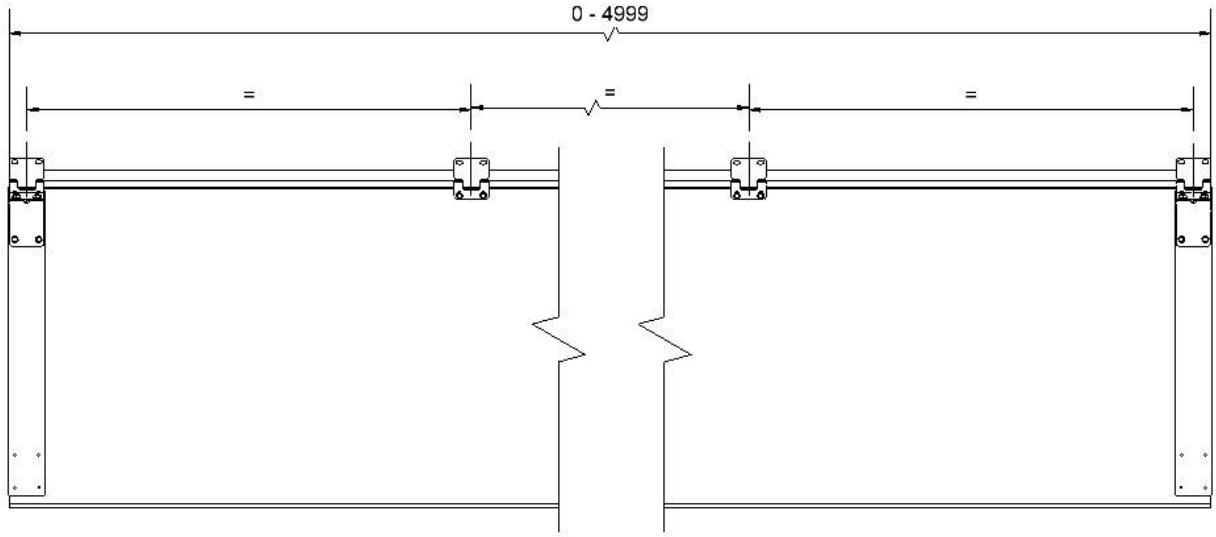


4.11.2 Panel assembly

A door width of ≤ 4999 requires the use of single side hinges and end caps; you don't need to use stiffening profiles*.

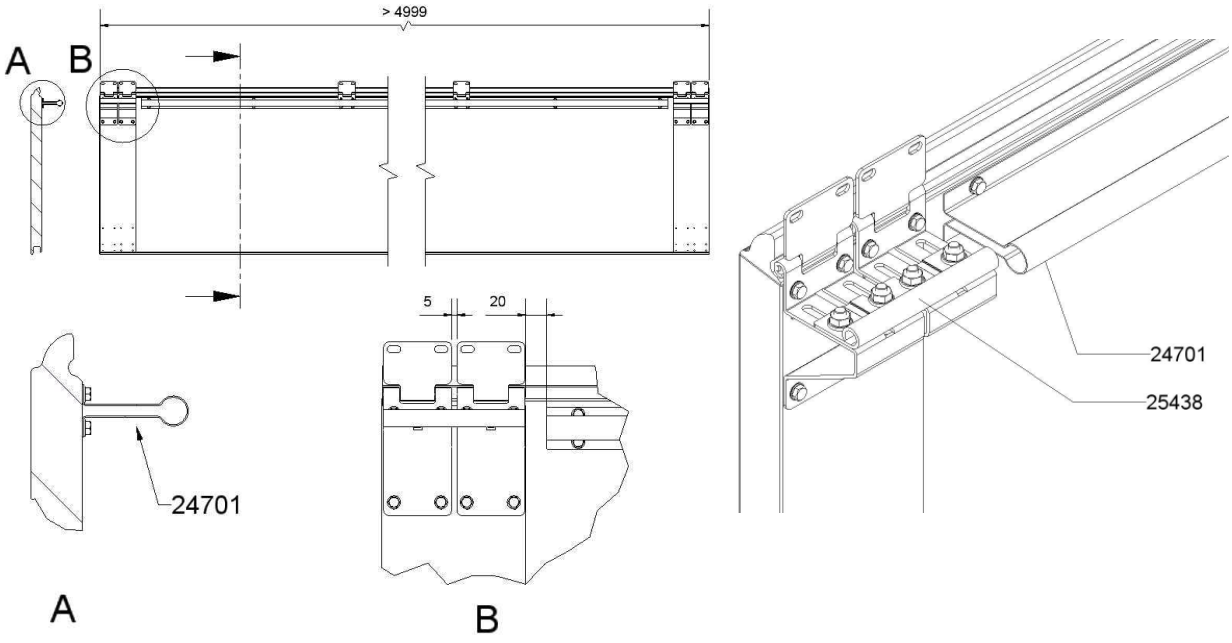
* Unless specified to meet an agreed wind load class.

Panel assembly using 'single' side hinges up to doors <4999



Panel assembly using 'twin' side hinges >5000 - 7000

A door width ≥ 5000 requires fitting twin side hinges, double width end caps. Doors ≥ 6000 require reinforcing profiles (windbars) on each panel! See fig below



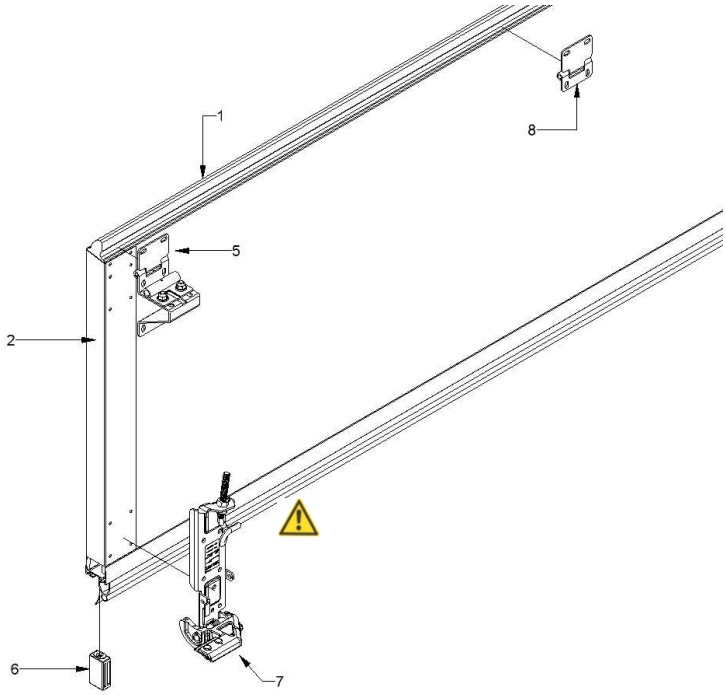
Fit the cable break protection in accordance with:

*Cable break protection manual 25450 * or 25453 ***

** Cable break protection 25450:*
TUV certified up to 900 kg door weight.
*** Cable break protection 25453:*
TUV certified up to 450 kg door weight.

Always ensure the rotation module with blade rotates freely at all times!

- Fit the side hinges (5) and the centre hinges (8), holes for the centre hinges (8) are factory drilled.. See 4.11.1 for the correct number of centre hinges.



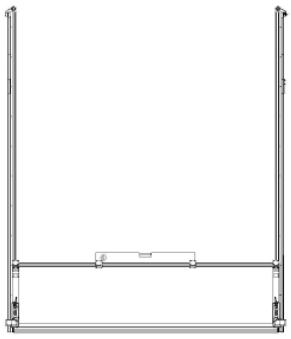
Optional safe edge rubber version shown with bump stops (6)

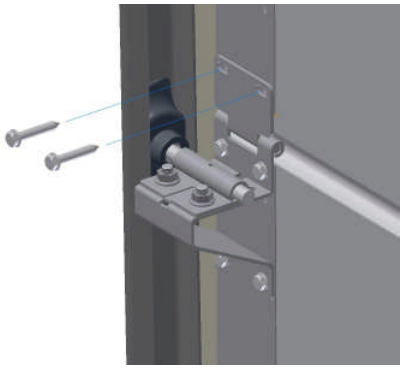
4.11.3 Intermediate section pre-assembly

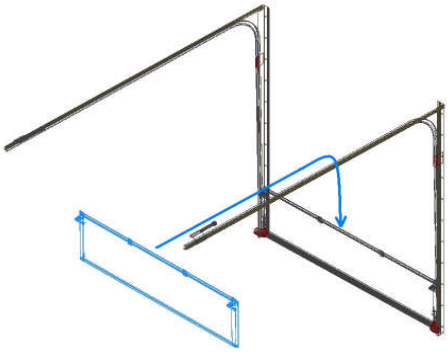
- Fit the side hinges (5) and the centre hinges (8), holes for the centre hinges (8) are factory drilled.. See 4.11.1 for the correct number of centre hinges.

4.11.4 Positioning the bottom panel and intermediate sections

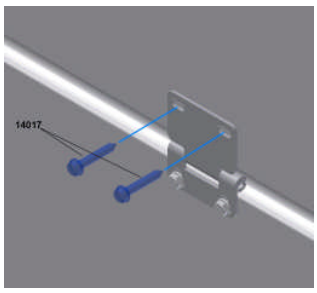
- Remove the cable break protection on one side.
- Position the roller without finger guard (25700) on the side of the cable break protection
- Position the bottom section between the track angles.
- Now fit the cable break protection including roller to the other side, but without finger guard (25700)
- Make the bottom section level! *see figure on the right*
- Position the intermediate sections (2 –3 –4 etc.) on top of the bottom sections and join them together using the hinges. Adjust the rollers such that the nylon wheel runs in the curve of the track and that play between panel and side seal is minimal (24740). It should be possible to rotate the nylon roller wheel by hand. *See figure below right.*

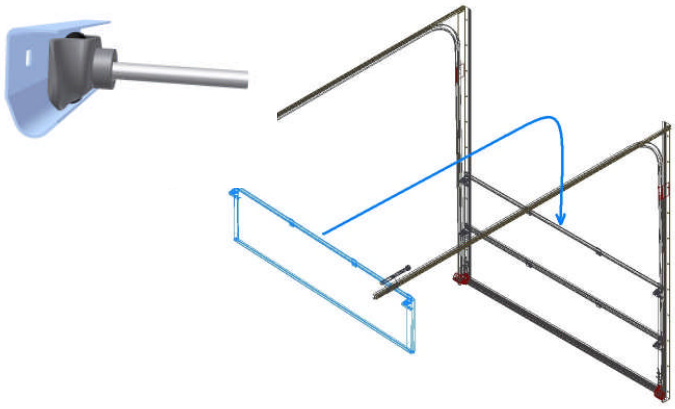






Pay attention to the installation of the finger guard!



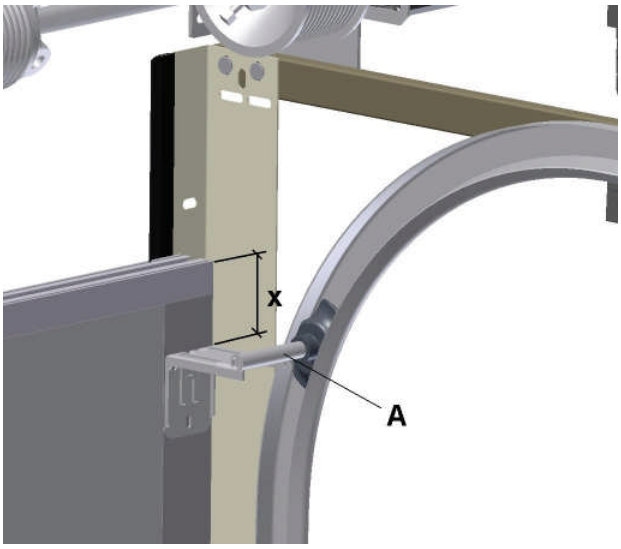


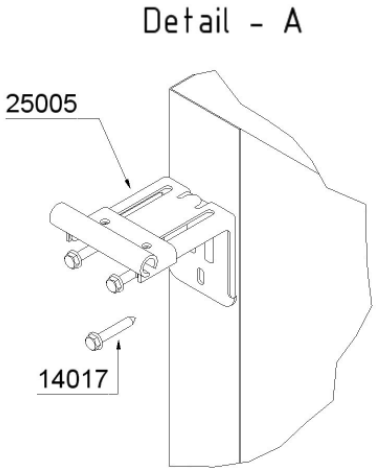
4.11.5 Positioning the top section

- Position the top section onto the intermediate sections and install the top roll holder (25005) in the correct position.

The correct position is determined by pressing the panel against the lintel seal. Now take the top roll holder with roller including finger guard and measure the distance X. Mark the positions for the Parker screws and secure. See figures (top roll holder 25005 shown).

- Adjust the top roll by pressing the panel against the lintel seal and securing the screws in the roll holder.





4.12 Fitting the cable and positioning the cable drum

General:

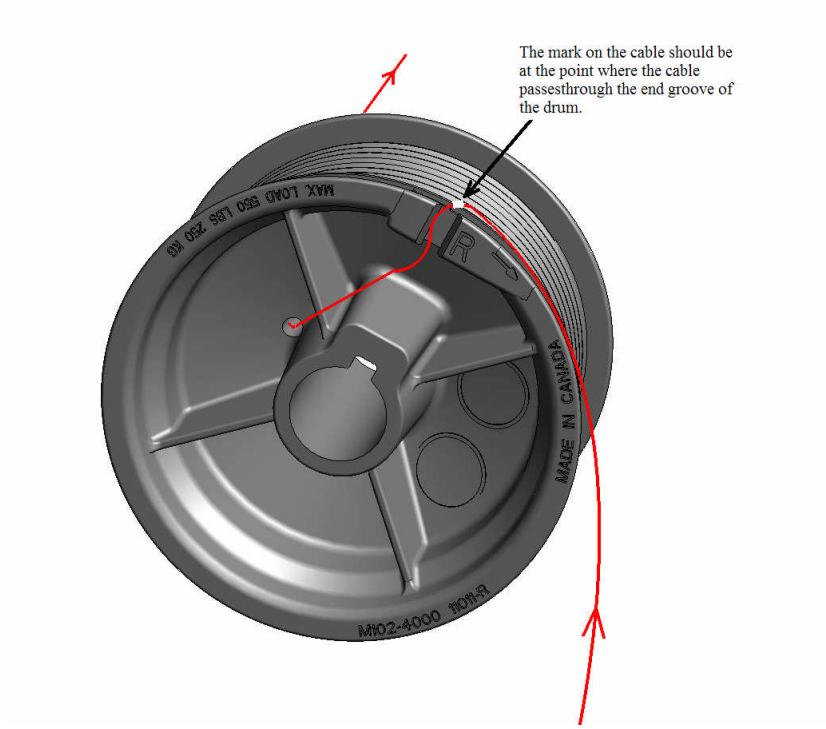
- Ensure the shaft is level.
- Fit the cable eye to the hook on the cable break device and feed the cable behind the roller shafts and up to the cable drum.
- Slide the cable end through the cable fixing hole of the cable drum and ensure the position of the right and the left cable drum is the same!
- When installing the cables, ensure the cable tension for the right and left cable is the same!

Item No. DOCO	Tensile strength	Diameter	Minimum break force	Max. door weight including 6 x safety
25110-	1770 N/m²	3mm	499 kg	166 kg max.
25111-	1770 N/m²	4mm	887 kg	295 kg max.
25112-	1770 N/m²	5mm	1390 kg	463 kg max.
25113-	1770 N/m²	6mm	2000 kg	666 kg max.

Determining the correct cable length:

To determine the exact point (where the cable exits the drum when the sectional door is closed), follow the procedure below:

Refer to Bill of materials - Spring Department - Look for cables and cable entry point.
Unroll the cable and measure from the bottom of the eye of the cable and mark the cables at the position given on the bill of materials.
Guide the cable through the cable break protection and behind the roller shafts to the cable drum, slide the cable end through the cable fixing hole and through the cable entry on the end groove of the drum. The mark on the cable should be at the point where the cable passes through the end groove of the drum.



* ½ safety winding included within calculation which **e***quals to 2 windings* ***TUV approved*** *//*
Ref: TUV: BB-FTA-MUC/re-sc 30604_Besch_torque.doc
!! THIS ONLY APPLIES TO DOCO INTERNATIONAL CABLE DRUMS !!

- Pass slack cable through cable fixing hole and secure the cable by tightening the plain bolt (not coloured red).
- Then secure the cable drum including key onto the shaft by tightening the bolts (red). See 4.10.11
- Once again: Ensure the position of the left and right cable drum is the same and that the cable tension of both cables is equal!

4.13 Tensioning the spring set

Secure the door if necessary so it cannot rise, for instance by fitting clamps to the vertical guide tracks.
Tension the springs according to the procedure below.
The number of 'turns' for the spring is specified on the labels of the assembled spring and on he spring section of the bill of materials..
After tensioning, secure the tensioning plug to the shaft using 27 to max. 34Nm

Procedure for tensioning a spring.

IMPORTANT: Tensioned springs carry a high tension; always be very careful, especially when adjusting, and make sure the tensioning rods (12025) are the right size and are well maintained. 2 people (minimum) are required to tension springs.
Tension the springs from bottom to top! Tensioning the spring will make it thinner and longer (by the number of turns x wire thickness); if this is not the case, then the left and right springs have been swapped!

1) Mark the spring by drawing a straight line.
2) Insert the 1st tensioning rod into the tensioning plug.
3) Turn the 1st tensioning rod a quarter turn in such a way as to tension the spring.
4) Hold the 1st tensioning rod secure and now position the 2nd tensioning rod in the next hole of the tensioning plug.
5) Turn the 2nd tensioning rod a quarter turn.
6) Hold the 2nd tensioning rod secure (taking over the tension) and remove the 1st tensioning rod.
7) Repeat step 3 – 4 – 5 – 6 until the correct tension is reached..
8) Insert the steel key
9) Secure the tensioning plug to the shaft by tightening the bolts in the tensioning plug to 27 - 34Nm.
10) Now remove the last tensioning rod.
11) Now check the number of turns by counting the number of lines on the spring.

Remove the block on the shaft and vertical guide tracks and your sectional door is finished.
Ensure the door is properly balanced. If not, follow the instructions in 4.15 (correcting the spring tension).

4.14 Correcting the spring tension

Block the shaft and the door panel.
Secure the door if necessary so it cannot rise, for instance by fitting clamps to the vertical guide tracks.

IMPORTANT: Tensioned springs carry a high tension; always be very careful, especially when adjusting, and make use of the right size and well maintained tensioning rods (12025)) - 2 people (minimum) are required to tension springs.

The maximum adjustment to the springs is 1 turn per spring. Ensure both springs are adjusted equally.

1) Insert the 1st tensioning rod in the tensioning plug.
2) Turn the tensioning rod in the desired direction.
3) Carefully undo the bolts in the tensioning head and take over the spring tension.
4) Remove the steel key.
5) Hold the 1st tensioning rod secure and now position the 2nd tensioning rod in the next hole of the tensioning plug.
6) Turn the 2nd tensioning rod a quarter turn in the desired direction.
7) Hold the 2nd tensioning rod secure (taking over the tension) and remove the 1st tensioning rod.
8) Repeat step 4-5-6 until the desired tension is reached.
9) Insert the steel key
10) Secure the tensioning plug to the shaft by tightening the bolts in the tensioning plug to 27 - 34Nm.
11) Now remove the last tensioning rod.

Remove the block on the shaft and vertical guide tracks and your sectional door is finished.

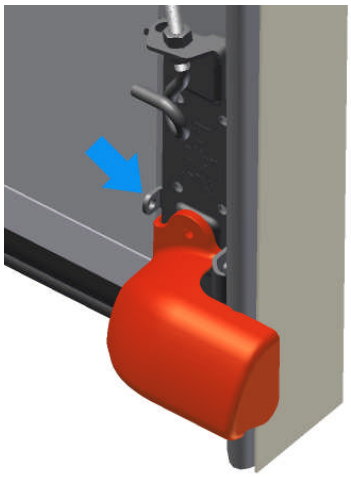
4.15 Operation

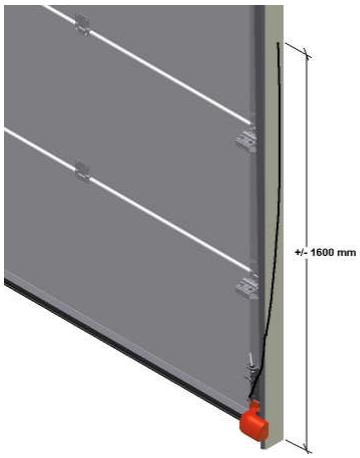
The sectional door may be operated using the following methods:

1) Pull chain operation / manual operation
2) Chain operation (1:4)
3) Electric drive (slip-on motor) and control
    a) Control: pulse operation
    b) Control: dead man operation
    c) Control: automatic or remote operation

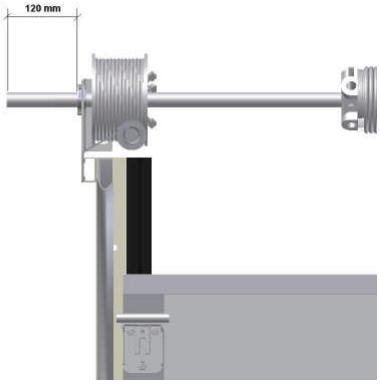
4.15.1 Chain pull operation / manual operation

Attach the chain to the cable break protection and to a point approx. 1600mm from the bottom of the guide angle. Rope length = door height – 1000mm.





4.15.2 Chain operating (1:4), item 25025

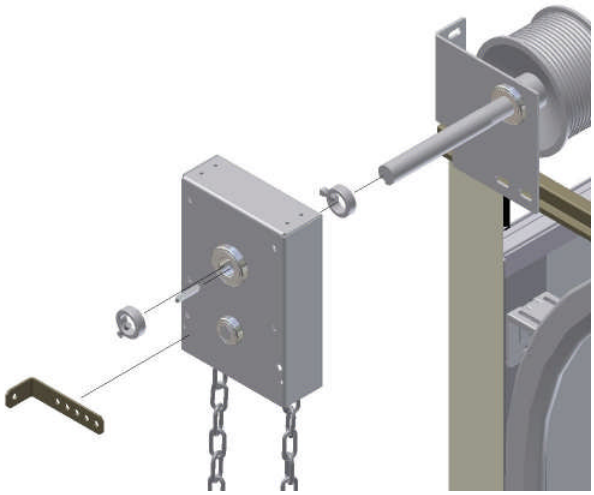


The hand chain hoist 25025 may not be used for doors heavier then 600kg (provided the sectional door is perfectly balanced!)
Maximum allowed pulling force: 16 kg.
Maximum allowed torque on the shaft: 39 N/mm²
The hand chain hoist 25025 comprises the following components:

- Housing and transmission
- Hand chain approx. 8 metres long
- Key
- Mounting bracket
- Chain holder
- Locking collar 2x
- Fixing bolt

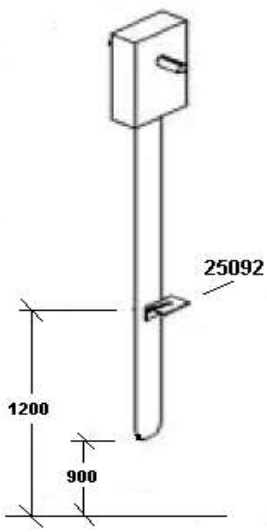
Fixing the hand chain hoist:

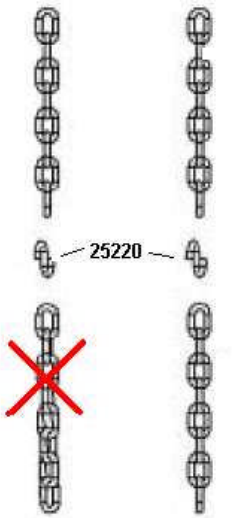
- Ensure the chain runs freely in its housing.
- Ensure the shaft protrudes 120mm minimum at the mounting side.
- Slide one locking collar onto the shaft.
- Slide the housing onto the shaft.
- Fit the mounting bracket to the housing and then to the wall or end bearing plate using the cleat provided.
- Fit the key.
- Slide the other locking collar onto the shaft and secure both locking collars.
- Attach the chain locking cleat to the wall or construction at a height of approx. 1200mm.
- Distance to bottom of chain approx. 900mm*.



* If the chain is too short or too long, it should be lengthened or shortened. This is achieved by simply opening and closing a link.

Extra chain: DOCO item 25020-1
Link: DOCO item 25220





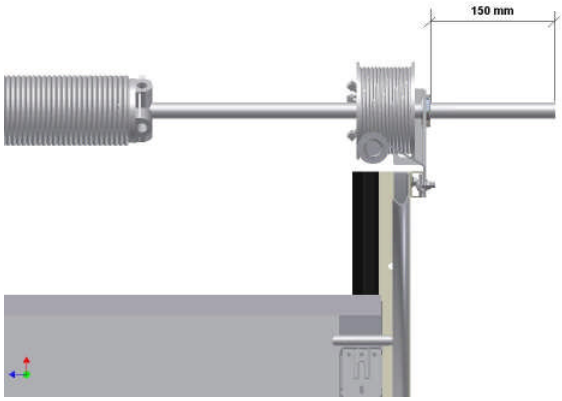
4.15.3 Electric drive (slip-on motor) and control

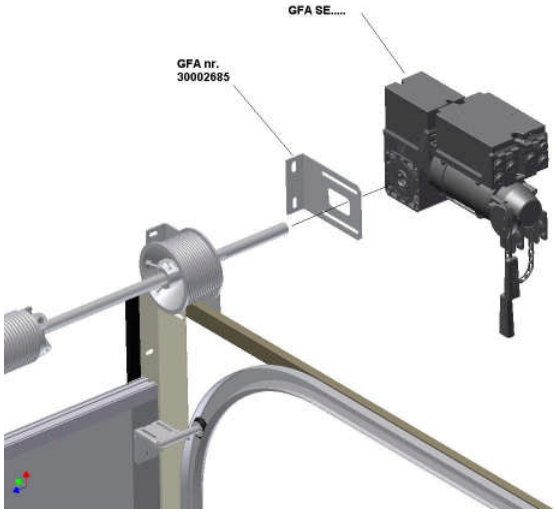
Our fitting sets have been certified for the drives specified in the table below, fitted with the specified safety bottom edges (if specified).

Installation of electric drive and control

The installation of the electric drive and control must be carried out in accordance with the installation manual provided by the supplier of the electric drive and control.
Ensure the shaft protrudes approx. 150mm at the electric drive side. Then fit the slip-on motor support plate and slide the slip-on motor onto the shaft and fit the key supplied.

4.15.3.a Control: Pulse control





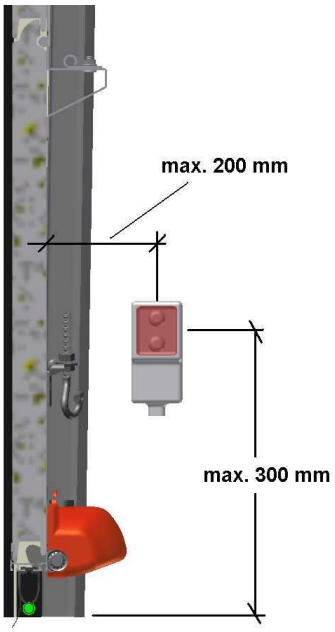
This control performs one complete opening and closing movement of the door panel.
Always make sure you can see the door panel when using this control.

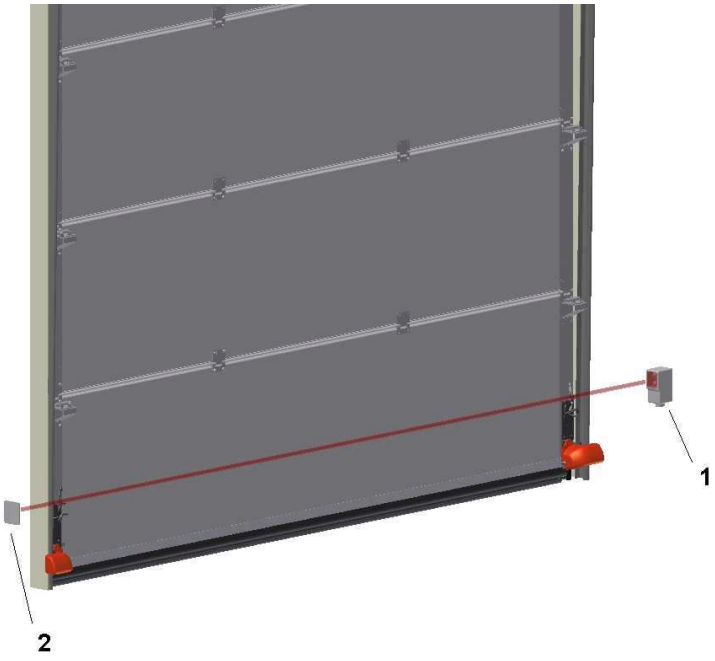
4.15.3.b Control: Dead man control

This control will only operate the door panel as long as the activating button is pressed.
As soon as the activating button is released, the door panel stops.

4.15.3.c Control: Automatic operation or via remote

This control can be used to operate the door panel without having the door panel in sight.
If the control is switched this way, or is changed to this mode later, an optical safety bottom edge should be fitted together with a photoelectric cell. This can be a reflection type or a one way photoelectric cell protection.
It should be positioned no more than 200mm from the door and no more than 300mm from the ground (inside).


max. 200 mm
max. 300 mm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2

4.16 Optional extras

Optional extras for installation:
- Windows
- Locks / bolts
- Handles

4.16.1 Windows

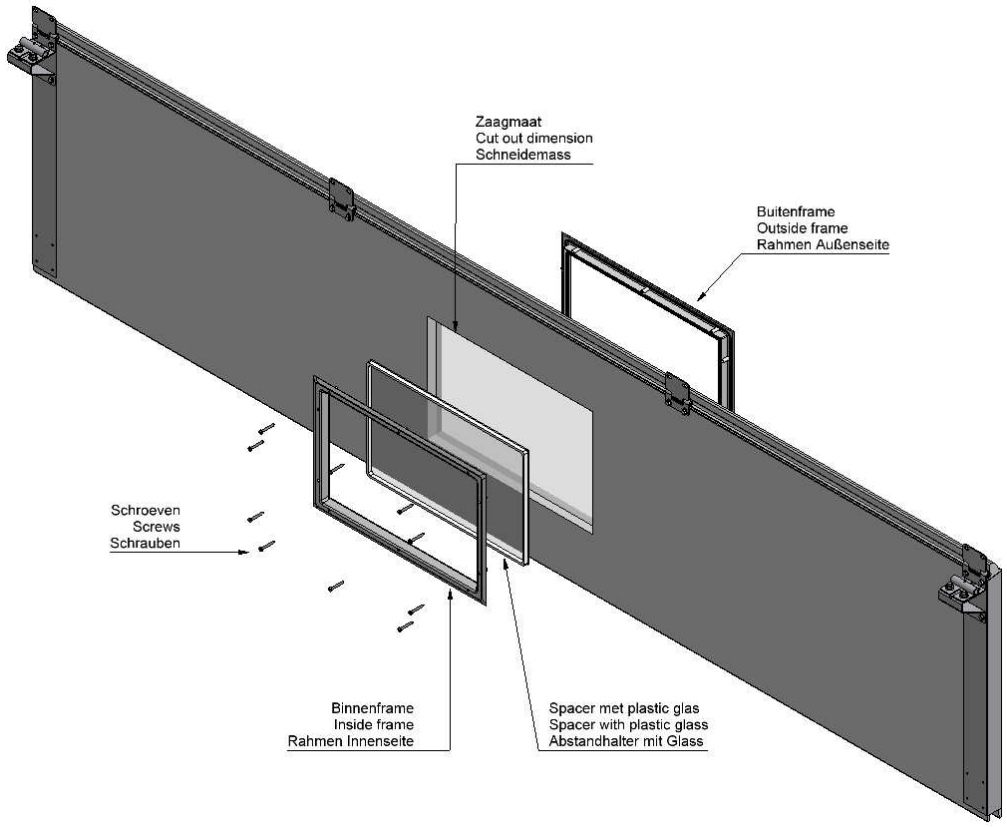
DOCO windows have been approved in accordance with the EN 12600 standard of the EU and comply with Class 2.

Approved windows:

-	85101 (PC)	rectangular click-window, black	window size: 680x370	cutting size: 655x345
-	85102 (PC)	oval click-window, black	window size: 725x325	cutting size: 695x295 R70
-	85600 (PC)	oval screw window, black	window size: 665x345	cutting size: 638x320 R100
-	85603 (PC)	rectangular screw window, black	window size: 637x332	cutting size: 610x305
-	85606 (PC)	rectangular screw window, white	window size: 488x322	cutting size: 466x300
-	85616 (PC)	rectangular screw window, black	window size: 488x322	cutting size: 466x300

NOTE:
Depending on the model, the window will either screw or click together, and the 'spacer' part may already be sealed to the outside frame.

Example: Window 85606



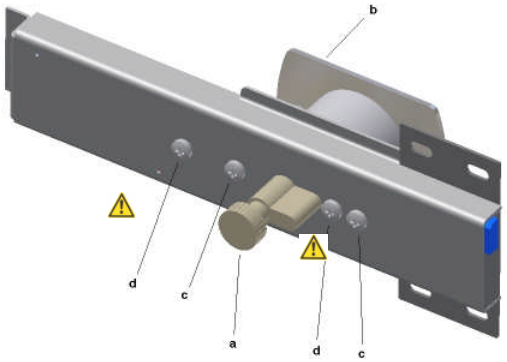
4.16.2 Locks and bolts

General
Electrically operated doors may not be fitted with locks or bolts unless cut out switches are fitted!

4.16.2.1 Lock 25226 / 25228

Specifications:

- Lock 25226 with black outer plate
- Lock 25228 with chrome outer plate
- Stroke approx. 80mm
- Heavy-duty version, fitted to end cover.
- Euro cylinder
- 3 keys

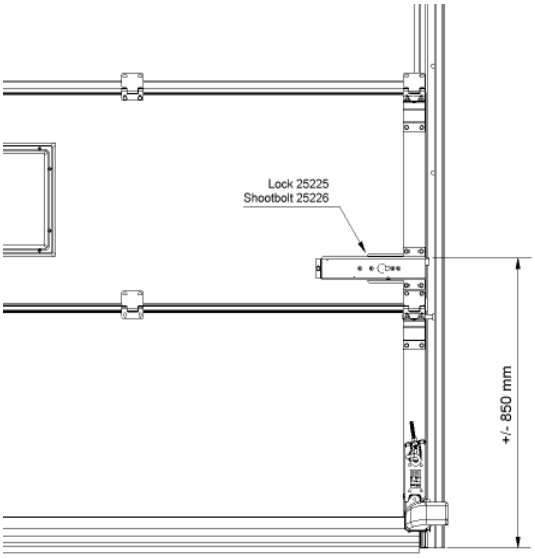


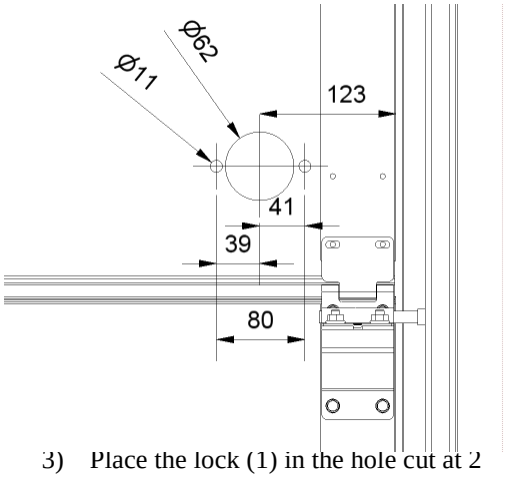
a) Euro cylinder
b) Outer plate
c) Screws to fix outer plate
d) Lock screws, don't undo!!

Installation:

Screws coded D should NOT be undone!

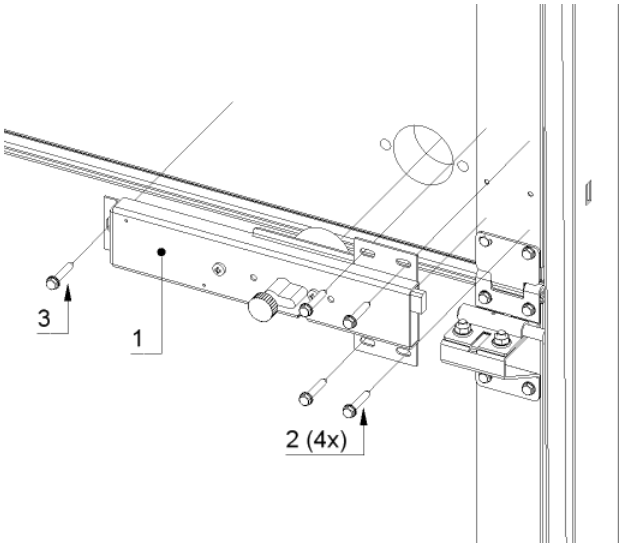
1) Install the lock at approx. 850mm from the ground, just above the side hinge of the bottom section.
2) Using a jigsaw, cut a Ø 62mm hole in the panel and drill Ø11mm holes, as in drawing.



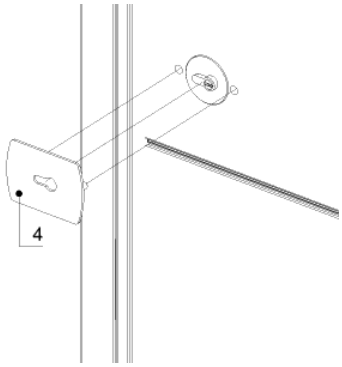


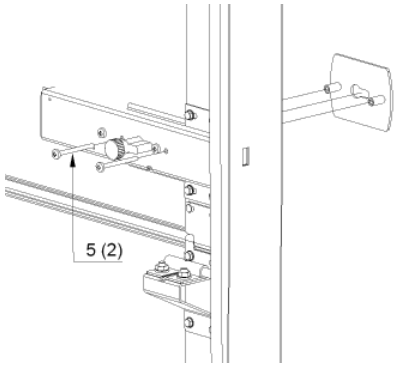
3) Place the lock (1) in the hole cut at 2 and mark the fixing points using a marker pen. Drill 4.5mm holes at these points.

4) Attach the lock to the end cover using the 4 x No. 2 Parker screws, to 15Nm. Then tighten the 1 x No. 3 Parker screw to 10Nm.

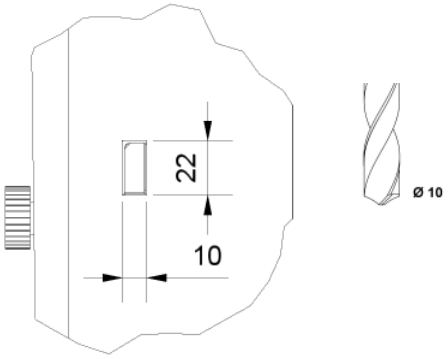


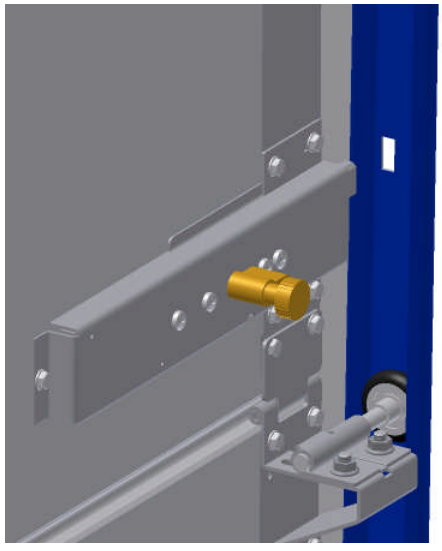
5) Fit the outer plate to the outside and secure the outer plate to the lock using the crosshead screws (5).





6) Next, drill two Ø10 holes in the L-angle with guide track and remove the remaining material using a file, as in the drawing.

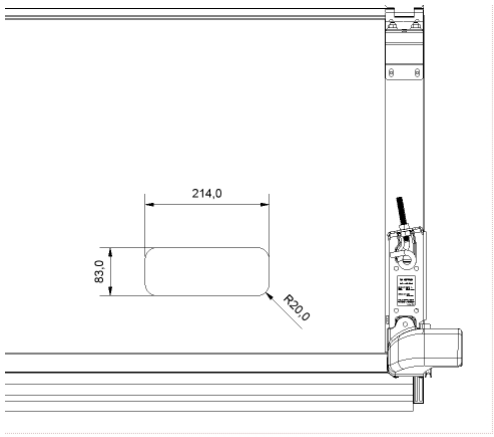




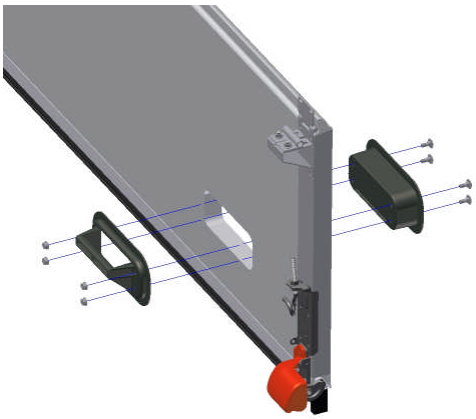
4.16.3 Handles

Handle 25093

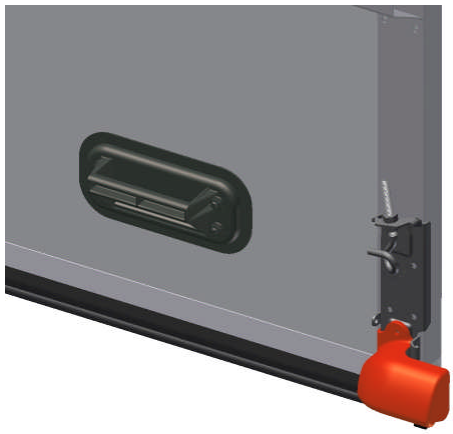
1)



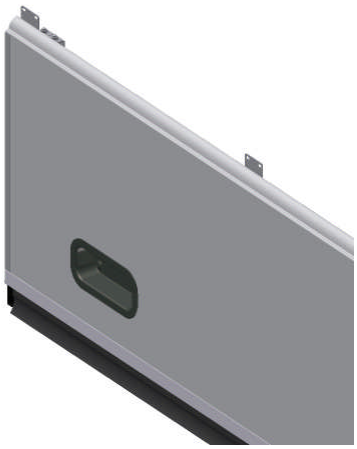
2)



3)



4)



5 Commissioning

This industrial gate should be commissioned by an experienced fitter. Commissioning must be recorded in writing. The person responsible for the installation should complete the certificate of conformity and affix the CE label. Affixing the CE label certifies compliance with EN directives.

Affix CE lable bottom left or right to an end cover of the 2nd section.

6 Troubleshooting

Check points for a defective / unbalanced sectional gate.

Applicable to all lift systems:

Check 1) Check the weight of the door panel.

Check 2) Have the correct cable drums been supplied?

Check 3) Are the cable drums fitted correctly?
Check the following (from inside to outside):
- Left drum coded red and fitted on the left.
- Right drum coded black and fitted on the right.
- Is the cable positioned in between construction/wall and shaft?
- Check the position of the cable going in.

Check 4) Check the correct torsion springs have been supplied and fitted.
- Check the wire thickness
- Check the spring diameter
- Check the spring length (excluding plugs and winders)

Check 5) When the door panel is closed, there should not be too much friction. The rollers should still turn.

Check 6) Are there any obstructions during opening / closing of the door panel?

Check 7) Check the clearance between door panel and guide track, it should be approx. 30mm and the cable should run freely.

Check 8) Are the guide tracks parallel in both vertical and horizontal direction? Measure distance and height.

Additional to high and vertical lift systems:

Check 9) Check the 'cable exit point' at the drum!
For high lift systems, this should be checked by tracing the course of the cable. As soon as the first roller goes round the bend, the cable should be at the flat section of the cable drum (also see 4.13).

7 Dismantling

CAUTION! DANGER!

- Dismantling should only be performed by qualified installation/disassembly personnel.
- Ensure only installation / dismantling personnel are present within the work area and keep others away, if necessary by using appropriate barriers and safety devices.
- Ensure no electric components are live.
- Ensure adequate light when disassembling.
- Especially when releasing the springs, ensure the use of correct tools and stable footing.
- For details and drawings of the various parts to be dismantled, please refer to the installation instructions in this manual.

Procedure:

Step 1) Release the torsion springs!

IMPORTANT: Tensioned springs carry a high tension; always be very careful, and use the right size and well maintained tensioning rods (12025) - 2 people (minimum) are required to tension springs.

1) Insert the 1st tensioning rod into the tensioning plug
2) Carefully undo the bolts in the tensioning plug and take over the spring tension.
3) Remove the steel key.
4) Keep a good grip on the 1st tensioning rod and carefully undo the bolts on the tensioning plug and transfer the spring tension.
5) Now place the 2nd tensioning rod in the next hole of the tensioning plug and carefully release the spring. The spring is released from top to bottom.
6) Again, fit the 1st tensioning rod to the tensioning plug and release.
7) Repeat steps 3-4 until the spring is released.
8) Repeat steps 1-4 for the other spring (springs).

Step 2) Remove the drive, following the drive supplier's instructions.

Step 3) Undo the bolts in the cable drums and remove the steel cables from the cable drums. Be careful for any residual tension in the cables, check the cables are slack!

Step 4) Remove the spring assembly. Do this by first removing the coupling and then carefully sliding both shaft halves out of the bearing plates. Be aware that components may slide along the shaft!

Step 5) Remove the panel sections from top to bottom. Achieve this by removing the roller holders and centre hinges.

Step 6) Remove the horizontal section of the track set, including the ceiling brackets.

Step 7) Remove the vertical track set section.

7.1 Disposal

All parts of this industrial gate can be easily identified and recycled.
Separate the parts after dismantling.
Note: Materials can only be recycled if they are returned separately.
Deliver the materials to the relevant body responsible for processing the separated materials.

Appendix 1 Fixing vertical track sets

Minimum number of Fixing points	Force (KN) 5	7.5	10	12.5	15	17.5	20	22.5	25	27.5	30	32.5	35
8	M8	M8	M8	M10	M10								
10	M6	M8	M8	M8	M10	M10	M10						
12	M6	M6	M8	M8	M8	M10	M10	M10					
14	M6	M6	M8	M8	M8	M8	M10	M10	M10	M10			
16		M6	M6	M8	M8	M8	M8	M10	M10	M10	M10	M10	
18			M6	M6	M8	M8	M8	M8	M10	M10	M10	M10	M10

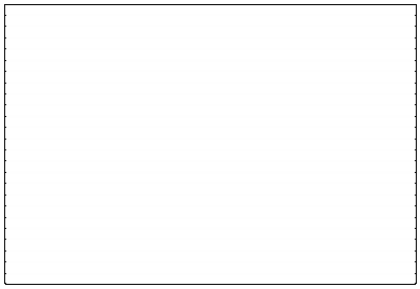
Appendix 2 Hardware / Panels.

Panel (1)	End cover (2)	Alum. profile (3)	Side hinge (5)	Centre hinge (8)
Bremet Securwall	**80612L** (610) / **80617L** (500)	**80041**	**25734**	**25733**
Hoesch	**80612L** (610) / **80613L** (488)	**80041**	**25334**	**25333**
Apco - Kingspann	**80612L** (610) / **80617L** (500)	**80041**	**25334**	**25333**

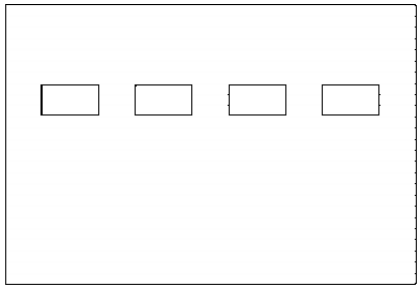
Appendix 3 EN 13241-1 Classification

Figures are given for guidance only for specific contract figures please contact our technical department.

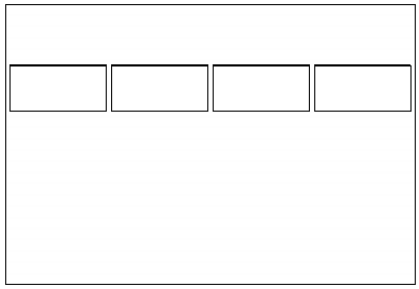
Panel type (5)	Air permeability (1)	Water tightness (2)	Resistance to wind load (3)	Heat insulation (4)
Bremet Securwall	4	3	3	n/a
Apco - Kingspann	2	3	On application	On application
Hoesch	4	3	3	n/a



Panel type (5)	Air permeability (1)	Water tightness (2)	Resistance to wind load (3)	Heat insulation (4)
Bremet Securwall	4	3	3	n/a
Apco - Kingspann	2	3	On application	On application
Hoesch	3	3	3	n/a



Panel type (5)	Air permeability (1)	Water tightness (2)	Resistance to wind load (3)	Heat insulation (4)
Bremet Securwall	n/a	n/a	n/a	n/a
Apco - Kingspann	3	3	On application	On application
Hoesch	4	3	3	n/a



1) in accordance with EN 12426
2) in accordance with EN 12425
3) in accordance with EN 12424
4) in accordance with EN 13241-1 appendix B / EN 12428
5) door panel 3500 x 3000